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ABSTRACT

In 1998, the Thomas B. Fordham Foundation reviewed state academic standards in English language arts/reading, history, geography, mathematics, and science--the five essential subjects identified at the 1998 "education summit." Because many states have changed their standards in the past 2 years, the Foundation has evaluated them again. The news is good, but only modestly so. In every subject, the hypothetical "average" state made a mild improvement in the quality of its academic standards, and the number of states earning "honors" grades (A's or B's) rose. The 1998 average grade was a D+, but the 2000 average is a C-. State standards are becoming more specific and measurable, and content is making a comeback as a focus. States are also becoming less enamored of national standards promoted by professional organizations. Only five states, four of them in the South, combine solid standards with strong accountability. Thirty states display a combination of mediocre to awful (or no) standards and weak accountability, and 12 states rest their high-stakes accountability systems on mediocre or inferior standards. Twenty-one states cannot claim to embrace standards-based reform. A report for all states summarizes each state's standards. The first five appendixes are reviews of the five subject areas. Three other appendixes discuss state documents and school-based accountability and list the report's contributors. (Contains 23 tables.) (SLD)

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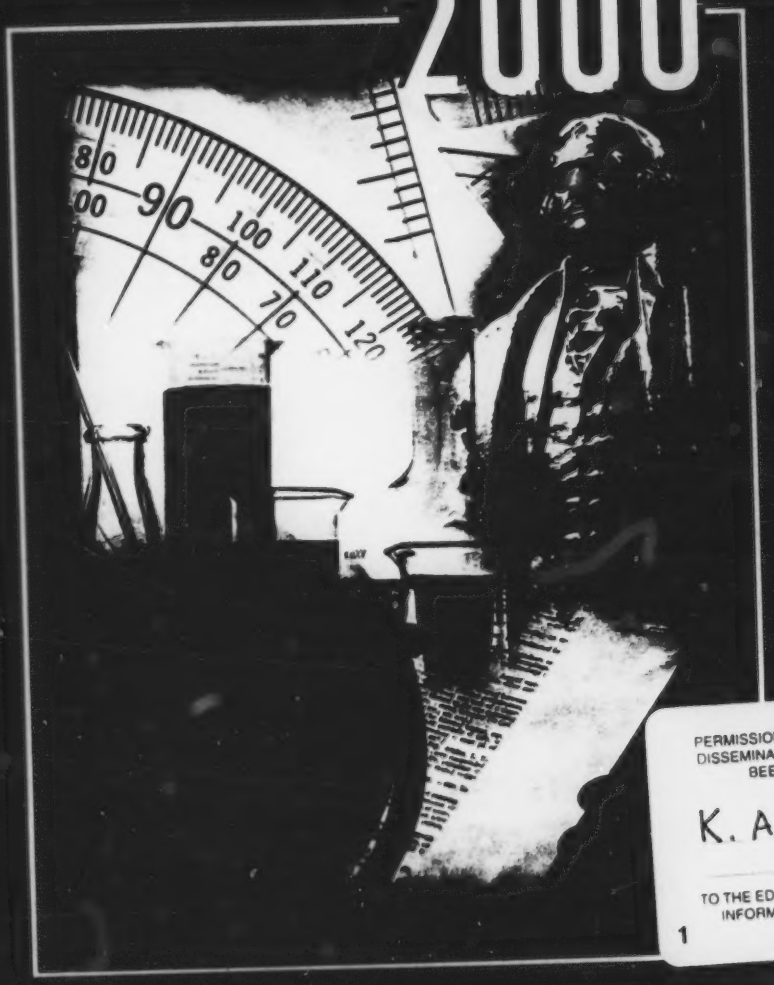

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January 2000

The State of State Standards

2000

With Reviews by

Sandra Stotsky	*English*
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Susan Munroe and Terry Smith	*Geography*
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Michael J. Petrilli

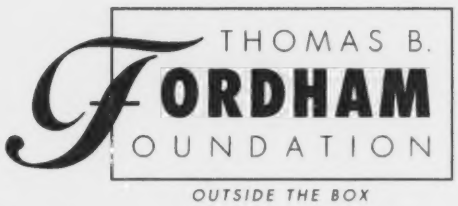

Table of Contents

List of Tables and Figures v

Foreword vii

Executive Summary ix

The State of State Standards

- In 2000: Overview and Implications 1
  by Chester E. Finn, Jr. and Michael J. Petrilli
- In English, by Sandra Stotsky 7
- In History, by David Warren Saxe 11
- In Geography, by Susan Munroe 15
- In Mathematics, by Ralph A. Raimi 19
- In Science, by Lawrence S Lerner 22

State-by-State Reports

Alabama 25
Alaska 27
Arizona 29
Arkansas 31
California 33
Colorado 35
Connecticut 36
Delaware 38
District of Columbia 41
Florida 43
Georgia 46
Hawaii 49
Idaho 51
Illinois 52
Indiana 53
Iowa 55
Kansas 56
Kentucky 59
Louisiana 62
Maine 64
Maryland 66
Massachusetts 68
Michigan 69
Minnesota 71
Mississippi 73
Missouri 75
Montana 77
Nebraska 79
Nevada 82
New Hampshire 85
New Jersey 87
New Mexico 89
New York 91
North Carolina 94
North Dakota 96
Ohio 98
Oklahoma 100
Oregon 102
Pennsylvania 104
Rhode Island 106
South Carolina 107
South Dakota 110
Tennessee 113
Texas 115
Utah 117
Vermont 118
Virginia 120
Washington 121
West Virginia 122
Wisconsin 123
Wyoming 125

Appendix A:
English Criteria and Detailed Grades 129

Appendix B:
History Criteria and Detailed Grades 137

Appendix C:
Geography Criteria and Detailed Grades 143

Appendix D:
Mathematics Criteria and Detailed Grades . . 151

Appendix E:
Science Criteria and Detailed Grades 155

Appendix F:
State Documents Examined 163

Appendix G:
School-Based Accountability 175

Appendix H:
Contributors 177

Tables and Figures

Summary of the Scores x

Figure 1: Standards vs. Accountability 3

National Report Card: English 8

National Report Card: History 12

National Report Card: Geography 16

National Report Card: Math 20

National Report Card: Science 23

Table A1: English: Purposes, Audience, etc. 131

Table A2: English: Organization of Standards 132

Table A3: English: Disciplinary Coverage 133

Table A4: English: Quality of Standards 134

Table A5: English: Anti-Academic Requirements 135

Table A6: English: Summary 136

Table B1: History: All Criteria 138

Table B2: History: Scores by Criteria Cluster 139

Table B3: History: Frequency Scores 140

Table B4: History: Final Scores 141

Table C1: Geography: Scoring Summary 145

Table C2: Geography: General Characteristics 146

Table C3: Geog.: Comprehensiveness & Rigor K-4 . . . 147

Table C4: Geog.: Comprehensiveness & Rigor 5-8 . . . 148

Table C5: Geog.: Comprehensiveness & Rigor 9-12 . . . 149

Table D1: Mathematics Ratings 152

Table E1: Science: Summary of Results 157

Table E2: Science: Purposes, Audience, etc. 158

Table E3: Science: Organization of Standards 159

Table E4: Science: Coverage and Content 160

Table E5: Science: Quality of Standards 161

Table E6: Science: Negatives 162

Table G1: School-Based Accountability in the 50 States 175

Foreword

How good are state academic standards? Are they better than two years ago? How many states now match solid standards with strong school accountability? Those are the central questions examined by this report.

The Thomas B. Fordham Foundation has been interested in the quality of state standards for some time. In 1997, our first-ever research monograph was Sandra Stotsky's *State English Standards: An Appraisal of English Language Arts/Reading Standards in 28 States*. We followed it with five others in 1998 that dealt with academic standards: one each on history, geography, mathematics, and science standards, and a "summary" report: *The State of State Standards*.

The news then was downright discouraging. Taken as a whole, state academic standards were a pretty sad set of norms for the nation's schools and children. Most were vague, uninspired, timid, full of dubious educational advice, and generally not up to the task at hand. Their average grade was "D-Plus."

The news this year is a bit brighter. The average grade has risen to "C-Minus." States are writing stronger standards with more detail and content and fewer digressions into pedagogical matters. We've identified eight states (and the District of Columbia) that now have solid enough standards to earn an "honors grade" when averaged across the subjects. (That compares with just three states in the previous round.)

Of course, this means that 42 states still hold mediocre or inferior expectations for their K-12 students, at least in most subjects. Hence it must be said, 17 years after *A Nation at Risk*, 11 years after the Charlottesville Summit, and in the same year that our "National Education Goals" were to be met: most states still have not successfully completed the *first step* of standards-based reform.

The news gets bleaker when we look at the next steps: assessments and consequences. This report juxtaposes our reviewers' appraisals of state academic standards with data on school accountability systems in those same states. The result: only *five* states boast both solid academic standards *and* strong accountability. Meanwhile, battalions of governors, tycoons, educators, and other reformers assert with confidence that we're living in the age of standards-based reform. It appears that they exaggerate.

This report delivers a wealth of information. For those interested in the standards movement in general, turn to the overview essay, "The State of State Standards in 2000." For those interested in trends in specific subjects, turn to the analytic essays written by our perceptive reviewers, "The State of State Standards in English…in History…" etc. For state officials and other reformers interested in learning how individual jurisdictions fared, turn to our "State-by-State Reports." And for those intrepid souls interested in the nitty-gritty details, turn to our Appendices, where you will find detailed grades for every subject, the criteria used in our evaluations, a list of state documents examined, and a table on state accountability systems.

We were extremely fortunate to regain the services of the same perceptive and tough-minded reviewers and authors who wrote the previous reports. They are leaders in their respective disciplines and extremely talented at making grounded judgments about often-unmanageable standards documents. Their participation in both rounds of reviews makes our evaluations consistent and credible. We thank them for their wonderful work: Sandra Stotsky, who evaluated English language arts/reading standards; David Warren Saxe, who evaluated history standards; Susan Munroe and Terry Smith, who evaluated geography standards; Ralph A. Raimi and Lawrence S. Braden, who evaluated mathematics standards; and Lawrence S. Lerner, who evaluated science standards. (Authors' affiliations and contact information are listed in Appendix H.) Heartfelt gratitude also goes to Sheila Byrd, who painstakingly collected all relevant documents from the states. And my own special thanks to co-editor Mike Petrilli, who did the heavy lifting on this report—and did it well—as on so many missions and projects for the Foundation over the past two and a half years.

A few notes about the conventions and style of this report and the analyses undergirding it. We attempted to review every standards document that had changed since the last time we evaluated them. (This of course includes new documents in subjects and states that had none before.) We also asked states to send us any supporting documents that we should appraise. These arrived in many forms, such as teachers' guides, curriculum frameworks, etc. In most subjects, our reviewers ended up reviewing 30-40 new sets of state standards. These had either been revised since our last review, complemented with new materials, or drafted for the first time.

For standards that had not changed, we chose *not* to reproduce the previous analyses in our "State-by-State Reports" section. (These old-but-still-pertinent analyses can be found on our web site.) In the interest of com-

pleteness, however, we did print their grades in all relevant charts. To help the reader distinguish newly evaluated standards from those carried over from the previous evaluation, we placed all the old grades in *italics* throughout the report. Because we used the same criteria and reviewers, readers may view these grades as current and comparable to new grades issued in 2000.

This entire report can be viewed on our Foundation's web site: www.edexcellence.net. There, readers will also find links to the previous standards reports, where the criteria and methodology are explained at length.

The Thomas B. Fordham Foundation is a private foundation that supports research, publications, and action projects in elementary/secondary education reform at the national level and in the Dayton area. Further information can be obtained from our web site or by writing us at 1627 K St., NW, Suite 600, Washington, DC 20006. (We can also be e-mailed through our web site.) Hard copies of this and other Foundation reports can be obtained by calling 1-888-TBF-7474 (single copies are free). The Foundation is neither connected with nor sponsored by Fordham University.

Chester E. Finn, Jr.
President, Thomas B. Fordham Foundation
Washington, DC
January 2000

Executive Summary

Two years ago, the Thomas B. Fordham Foundation reviewed state academic standards in English language arts/reading, history, geography, mathematics, and science. These were the five essential subjects identified by the governors at the 1989 Charlottesville "education summit."

Because many states have changed their standards in the past two years, the Foundation has evaluated them once again. The news is good but modest. In every subject, the hypothetical "average state" made a mild improvement in the quality of its academic standards, and the number of states earning "honors" grades (A or B) rose:

	1998 Average	2000 Average	1998 Honors (# of states)	2000 Honors (# of states)
English	D+	C-	6	19
History	D	D+	4	10
Geography	D	C-	6	15
Math	D+	C	12	18
Science	C	C	13	19
All Subjects	D+	C-	3	9

A few welcome trends are also readily apparent:

1) State standards are becoming more specific and measurable.
2) Content is making a comeback.
3) States are less enamored of national standards promoted by professional organizations.

Standards and Accountability

This report also juxtaposes what we know about the quality of states' standards with what we know about the adequacy of their school-based accountability systems. Using data on standards from the present report and data on school accountability from *Quality Counts '99* (updated for 2000 by our Foundation), we have created a matrix that depicts the true state of standards-based reform in America today. Here are some highlights:

- Just five states--four of them in the South--combine solid standards with strong accountability.
- Thirty states display a deadly combination of mediocre to awful (or no) standards and weak accountability.
- Twelve states rest high-stakes accountability systems upon mediocre or inferior standards.

Lessons

- Most states cannot legitimately claim to embrace standards-based reform.
- States must improve their academic standards at the same time they are installing tougher accountability systems.
- Since standards-based reform is so elusive, it should not be used as the sole "silver bullet" for revitalizing American K-12 education; other reform strategies should be embraced as well.

SUMMARY OF THE SCORES

National Report Card — State Standards Across All Subjects

(in alphabetical order)

STATE	ENGLISH	HISTORY	GEOGRAPHY	MATH	SCIENCE	CUM.GPA	GRADE	'98 Grade
Alabama	A	B	B	B	D	2.60	B-	C-
Alaska	F	F	C	D	-	0.75	D-	D+
Arizona	B	A	B	B	A	3.40	B+	B+
Arkansas	D	F	F	D	F	0.40	F	F
California	A	A	C	A	A	3.60	A-	B
Colorado	F	D	A	D	D	1.40	D+	D+
Connecticut	D	D	D	D	B	1.40	D+	C-
Delaware	C	D	C	C	A	2.20	C+	D+
District of Columbia	A	F	A	B	-	2.75	B-	C-
Florida	B	C	B	D	F	1.80	C-	D+
Georgia	B	C	D	B	F	1.80	C-	C-
Hawaii	F	F	F	C	D	0.60	D-	D+
Idaho	-	-	-	-	-	-	-	-
Illinois	B	F	D	D	B	1.60	C-	C-
Indiana	F	C	A	C	A	2.40	C+	C+
Iowa	-	-	-	-	-	-	-	-
Kansas	F	B	A	A	F	2.20	C+	D-
Kentucky	F	D	F	B	D	1.00	D	F
Louisiana	B	C	A	F	C	2.20	C+	C-
Maine	B	D	F	D	D	1.20	D+	D-
Maryland	B	B	B	C	D	2.40	C+	F
Massachusetts	A	B	D	D	A	2.60	B-	C
Michigan	F	F	B	F	D	0.80	D-	D-
Minnesota	F	F	F	F	A	0.80	D-	F
Mississippi	C	C	D	A	F	1.80	C-	D
Missouri	F	C	B	F	C	1.40	D+	D-
Montana	F	-	-	D	D	0.66	D-	F
Nebraska	A	C	F	C	B	2.20	C+	F
Nevada	B	C	C	C	C	2.20	C+	-
New Hampshire	D	C	B	C	F	1.60	C-	C-
New Jersey	F	F	D	C	A	1.40	D+	D+
New Mexico	D	F	F	F	F	0.20	F	F
New York	C	D	D	B	C	1.80	C-	D+
North Carolina	B	D	C	A	A	2.80	B-	C
North Dakota	F	F	F	D	F	0.20	F	F
Ohio	D	D	D	A	B	2.00	C	C-
Oklahoma	D	B	C	B	F	1.80	C-	D-
Oregon	F	B	F	D	B	1.40	D+	D
Pennsylvania	C	F	-	C	-	1.33	D+	D-
Rhode Island	F	-	-	F	A	1.33	D+	C
South Carolina	B	C	A	B	B	3.00	B	D
South Dakota	C	C	C	A	B	2.60	B-	F
Tennessee	F	D	F	F	F	0.20	F	D-
Texas	B	B	A	B	C	3.00	B	B
Utah	C	C	C	B	B	2.40	C+	C+
Vermont	D	F	F	C	B	1.20	D+	D+
Virginia	B	A	D	B	D	2.40	C+	C+
Washington	D	F	F	F	B	0.80	D-	D-
West Virginia	B	C	B	B	F	2.20	C+	C
Wisconsin	A	F	F	C	C	1.60	C-	D+
Wyoming	D	F	F	D	F	0.40	F	-
United States	**C-**	**D+**	**C-**	**C**	**C**	**1.72**	**C-**	**D+**

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SUMMARY OF THE SCORES

National Report Card — State Standards Across All Subjects

(in rank order by cumulative GPA)

STATE	ENGLISH	HISTORY	GEOGRAPHY	MATH	SCIENCE	CUM.GPA	GRADE	RANK (98 RANK)
California	A	A	C	A	A	3.60	A-	1 (2)
Arizona	B	A	B	B	A	3.40	B+	2 (1)
South Carolina	B	C	A	B	B	3.00	B	3 (28)
Texas	B	B	A	B	C	3.00	B	3 (2)
Alabama	A	B	B	B	D	2.80	B-	5 (11)
North Carolina	B	D	C	A	A	2.80	B-	5 (7)
District of Columbia	A	F	A	B	-	2.75	B-	7 (13)
Massachusetts	A	B	D	D	A	2.60	B-	8 (7)
South Dakota	C	C	C	A	B	2.60	B-	8 (43)
Indiana	F	C	A	C	A	2.40	C+	10 (4)
Maryland	B	B	B	C	D	2.40	C+	10 (43)
Utah	C	C	C	B	B	2.40	C+	10 (4)
Virginia	B	A	D	B	D	2.40	C+	10 (4)
Delaware	C	D	C	C	A	2.20	C+	14 (24)
Kansas	F	B	A	A	F	2.20	C+	14 (31)
Louisiana	B	C	A	F	C	2.20	C+	14 (12)
Nebraska	A	C	F	C	B	2.20	C+	14 (40)
Nevada	B	C	C	C	C	2.20	C+	14 (-)
West Virginia	B	C	B	B	F	2.20	C+	14 (7)
Ohio	D	D	D	A	B	2.00	C	20 (17)
Florida	B	C	B	D	F	1.80	C-	21 (24)
Georgia	B	C	D	B	F	1.80	C-	21 (14)
Mississippi	C	C	D	A	F	1.80	C-	21 (28)
New York	C	D	D	B	C	1.80	C-	21 (19)
Oklahoma	D	B	C	B	F	1.80	C-	21 (34)
Illinois	B	F	D	D	B	1.60	C-	26 (14)
New Hampshire	D	C	B	C	F	1.60	C-	26 (14)
Wisconsin	A	F	F	C	C	1.60	C-	26 (24)
Colorado	F	D	A	D	D	1.40	D+	29 (19)
Connecticut	D	D	D	D	B	1.40	D+	29 (17)
Missouri	F	C	B	F	C	1.40	D+	29 (31)
New Jersey	F	F	D	C	A	1.40	D+	29 (24)
Oregon	F	B	F	D	B	1.40	D+	29 (28)
Pennsylvania	C	F	-	C	-	1.33	D+	34 (38)
Rhode Island	F	-	-	F	A	1.33	D+	34 (7)
Maine	B	D	F	D	D	1.20	D+	36 (38)
Vermont	D	F	F	C	B	1.20	D+	36 (23)
Kentucky	F	D	F	B	D	1.00	D	38 (42)
Michigan	F	F	B	F	D	0.80	D-	39 (34)
Minnesota	F	F	F	F	A	0.80	D-	39 (43)
Washington	D	F	F	F	B	0.80	D-	39 (31)
Alaska	F	F	C	D	-	0.75	D-	42 (21)
Montana	F	-	-	D	D	0.66	D-	43 (43)
Hawaii	F	F	F	C	D	0.60	D-	44 (21)
Arkansas	D	F	F	D	F	0.40	F	45 (43)
Wyoming	D	F	F	D	F	0.40	F	45 (-)
New Mexico	D	F	F	F	F	0.20	F	47 (43)
North Dakota	F	F	F	D	F	0.20	F	47 (40)
Tennessee	F	D	F	F	F	0.20	F	47 (37)
Idaho	-	-	-	-	-	-	-	- -
Iowa	-	-	-	-	-	-	-	- -

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The State of State Standards in 2000

by Chester E. Finn, Jr. and Michael J. Petrilli

The news is good but modest. In each of the five core K-12 subjects, the hypothetical "average state" made a mild improvement in the quality of its academic standards during the past two years, and the number of states earning "honors" grades (A or B) rose:

	1998 Average	2000 Average	1998 Honors (# of states)	2000 Honors (# of states)
English	D+	C-	6	19
History	D	D+	4	10
Geography	D	C-	6	15
Math	D+	C	12	18
Science	C	C	13	19
All Subjects	D+	C-	3	9

This progress, limited as it is, deserves applause. More states have become more serious about their responsibility to identify the essential knowledge and skills that today's students must master in order to be contributing citizens and workers in the new millennium. Perhaps they are learning from one another and copying solid models; perhaps the analyses and criticisms of several national organizations (Achieve, the American Federation of Teachers, *Education Week*, StandardsWork, the Council on Basic Education, etc., as well as this Foundation) have made a real contribution.

But before we uncork the champagne, let's take a closer look at some rude facts. Despite the progress that's been made, only eight states and the District of Columbia currently boast strong standards across the subjects. Which means that 42 states still hold mediocre to miserable expectations for their students. At a time when many school reformers have bet the farm on "standards-based reform," this should give real cause for concern.

Three Welcome Trends

1) *State Standards are Becoming More Specific and Measurable.*

The importance of this development cannot be overstated. Vague standards are worthless, obscuring the desired results from teachers, parents, students, and the public, while creating an environment in which tests—often off-the-shelf, commercial tests—become the tail that wags the standards dog. Vague standards are in some respects worse than no standards, because they can mislead the public into thinking that the state has done something that in fact it has not. Fortunately, state standards writers are becoming more precise. In English, for example, the percentage of states earning acceptable ratings on Sandra Stotsky's criterion of "measurability" rose 24%. In geography, the average score for "guidance to teachers" rose 38%. And in math, the average score for "clarity" rose 40%. The American Federation of Teachers and Achieve have been pushing for clearer standards for years; perhaps their efforts are finally paying off. (We note that our reviewers have again been tougher graders than the AFT, whose annual appraisals of state standards are useful but not nearly so precise in their criteria for acceptable academic content in particular subjects.)

2) *Content is Making a Comeback.*

States' initial reluctance to specify any particular knowledge that all kids should know may be starting to dissipate, together with an excessive infatuation with "cognitive skills" unhinged from specific content. That is certainly the case in history. It is also true for geography, where the "comprehensiveness and rigor" scores rose 15%. And in math, scores for the "content" criterion gained 20% since 1998.

There are two big exceptions, however. In English, most states still refuse to identify impor-

tant literary works or authors that all children should read. Currently, only one in four shows the resolve to list literary benchmarks. The other exception is, of course, the evasion of evolution in science standards. The Kansas example is well known, but plenty of other states have taken considerable pains to avoid use of the "E" word—and sometimes the entire concept, on which modern biology rests—throughout their standards. For this, they lost many points—and the respect of much of the American public.

3) States are Less Enamored of Standards Promoted by Professional Organizations.

During the past decade, three subjects have been deeply politicized by their own in-house "experts": English, history, and mathematics. In all three subjects, one can now see the beginnings of a backlash against those experts. In English, for example, 45% of the states now insist on systematic phonics instruction during the early grades—up from 32% in 1997—an anathema to the International Reading Association and the National Council of Teachers of English. In history, rising scores reflect a growing rejection of the standards promulgated by the National Council of the Social Studies as well as the deeply flawed "national history standards" of a few years back. History actually seems to be making a modest comeback, emerging from the murky stew called "social studies." And in mathematics, more states are embracing the principles undergirding California's world-class math standards and rejecting the precepts of the National Council of Teachers of Mathematics (which, after much criticism, are themselves under revision). Readers can spot this trend in the improved scores under the "false doctrine" category.

This is a limited trend, however, and what is visible in state academic standards does not necessarily carry over to other policy domains. This past fall, for example, the nation learned that entry into public-school teaching would henceforth be more tightly joined to the standards promulgated by professional groups, at least in those states that use the "Praxis" exam as a qualification for beginning teachers. When the Educational Testing Service announced that the content tested by Praxis would henceforth be aligned with the standards of the National Council for Accreditation of Teacher Education (NCATE), it was embracing for teachers those very same "professional" standards in individual subjects that states are shunning for their students. A clash would seem to lie ahead.

Standards and Accountability

According to recent reports from Achieve, *Education Week*, the AFT, and others, a growing number of states are getting serious about school accountability: attaching assessments and consequences to their academic standards. One might suppose that this is good news and, in the abstract, it surely is. But what happens when states erect tough, high-stakes accountability systems atop dubious standards? And what happens in states that have great standards but no real accountability for attaining them? Is it not likely that both situations will produce only the illusion of reform?

We thought it would be illuminating to juxtapose what we know about the quality of state standards with what we know about the adequacy of states' school-based accountability systems. Using data on standards from the present report and data on school accountability drawn primarily from *Quality Counts '99* (see Appendix G) we have created a table that depicts the true state of standards-based reform in America today (see p. 3). The table has six cells, sorting the states by three levels of academic standards (solid, mediocre, inferior) and two kinds of accountability (strong and weak). The results are indeed illuminating, and more than a little alarming. Here are some highlights:

- Just five states--four of them in the South-- combine solid standards with strong accountability.
- Thirty states display a deadly combination of mediocre to awful (or no) standards and weak accountability.
- Twelve states rest high-stakes accountability systems upon mediocre or inferior standards.

Let's examine the six categories.

"The Honor Roll"
(Solid Standards, Strong Accountability)

These five states exemplify the theory and practice of standards-based reform and, in so doing, prove that it is possible to put all the essential elements into place. Note, though, how tiny this group is, and con-

[1] The District of Columbia was not included in the relevant tables in *Quality Counts '99*, and thus cannot be included herein.

Figure 1. Standards vs. Accountability

	Solid Standards (A or B Average)	Mediocre Standards (C Average)	Inferior or No Standards (D or F Average or Incomplete)
Strong Accountability (See Appendix G)	"The Honor Roll" Alabama California North Carolina South Carolina Texas	"Shaky Foundations" Florida Illinois Indiana Kansas Maryland Nevada New York Oklahoma Virginia West Virginia	"Trouble Ahead" Kentucky New Mexico
Weak Accountability (See Appendix G)	"Unrealized Potential" Arizona Massachusetts South Dakota	"Going Through the Motions" Delaware Georgia Louisiana Mississippi Nebraska New Hampshire Ohio Utah Wisconsin	"Irresponsible States" Alaska Arkansas Colorado Connecticut Hawaii Idaho Iowa Maine Michigan Minnesota Missouri Montana New Jersey North Dakota Oregon Pennsylvania Rhode Island Tennessee Vermont Washington Wyoming

The Honor Roll. Only these five states can claim to be doing standards-based reform well.

Unrealized Potential. These three states have great academic standards. Too bad they don't count for much.

Shaky Foundations. These ten states have built school-based accountability on a relatively weak foundation.

Going Through the Motions. With mediocre standards and little or no accountability, these nine states give lip-service to standards-based reform, but not much else.

Trouble Ahead. With high stakes attached to bad standards, Kentucky and New Mexico might inadvertently destroy some great schools--and push all schools towards more nonsense.

Irresponsible States. These 21 states cannot claim to embrace standards-based reform.

trast it with this excerpt from the "action statement" agreed to at the 1999 "summit" on standards-based reform: "The commitments made by the nation's governors and business leaders at the 1996 National Education Summit—commitments to higher standards, better assessments, and tougher accountability measures—have clearly become central elements in a nationwide campaign to improve school performance." This is most charitably described as wishful thinking. We don't believe it's right for America's governors, education leaders, and business tycoons to claim that the country has embraced standards-based reform when only five states have managed to match good standards with real accountability. As for the fact that four of the five of our "honor roll" states come from the South, this has the makings of an interesting study. Why have Southern states embraced standards and accountability with more enthusiasm than others? We suspect the good work of the Southern Regional Education Board has played a role, as has the early (mid-1980s) recognition by a number of southern governors that prosperity would come to their states only when education reform preceded it. (It is also a fact that many Southern states have been less smugly complacent about the performance of their public schools and, politically speaking, are sometimes less beholden to the forces of the "education establishment" that wield so much clout in chillier climes.)

"Unrealized Potential"
(Solid Standards, Weak Accountability)

Remember those classmates of yours with lofty SAT scores and crummy grades? Often termed "underachievers," they had the smarts but didn't "apply" themselves. The three states in this category are similar. They have fine academic standards but it's not clear that those standards count for much yet—especially for the adults who work in their public schools. We respect the education leaders in these jurisdictions and understand the political battles that loom whenever anyone proposes putting educators' jobs on the line. These states have some of the best standards in the nation. We hope that their leaders will now spend the necessary political capital to make them matter.

"Shaky Foundations"
(Mediocre Standards, Strong Accountability)

Some of these ten states are poster children of the standards-based reform movement. Their governors and chief state school officers speak at high-profile conferences; their systems earn emulation. Yet their mediocre academic standards—at least in some subjects—cannot bear the weight placed upon them by high-stakes accountability systems. The combination of vague standards and high-stakes accountability will lead to some worrisome outcomes. First, widespread cheating (as recently alleged in New York) will become more widespread, as frustrated educators fail to find reliable guidance about what to teach even as they know that their students must pass those tests. Second, the tests themselves will turn into the states' de facto standards. Depending on the tests, this might not be catastrophic. But it would make much more sense to fix the standards instead. Happily, with some re-writing and fine-tuning, all ten of these jurisdictions could easily join the honor roll.

"Going Through the Motions"
(Mediocre Standards, Weak Accountability)

These nine states are giving little more than lip service to standards-based reform. They have standards but they aren't very good. Their leaders talk about accountability but haven't translated speeches into action (or, worse, have installed high stakes for the kids but not for the grown-ups). With a little work, their standards could earn honors grades. Installing a bona-fide accountability system may prove tougher.

"Trouble Ahead"
(Inferior Standards, Strong Accountability)

With high stakes attached to bad standards, Kentucky and New Mexico run the risk of undermining good schools and encouraging the spread of dubious academic content. This might be the most vexed category of them all. Should these states be applauded for their bold action on the accountability front? Doesn't the Kentucky experience suggest that even bad standards are better than no standards at all? Maybe. Maybe not. We worry that good, academically oriented schools in these states will face overwhelming and damaging pressure to change their ways. We also suspect that, over time, any accountability system that rests on questionable education theories and dubious content is bound to fail.

"Irresponsible States"
(Inferior Standards, Weak Accountability)

An astonishing 21 states cannot honestly claim to be serious about standards-based reform. Their academic standards—at least in most subjects—are vague, vapid, and misleading (or missing). Their education systems rarely punish (or reward) schools that produce bad or good results. To be sure, a couple of these states (most prominently Iowa) have decided on principle not to join the push for statewide standards and accountability, preferring to leave such decisions to individual communities. Others, though, have told their citizens that they have, in fact, embarked on standards-based reform at the state level. This turns out to be an empty claim. They have neither the solid standards nor the tough-minded accountability systems that must accompany such a claim if it is to be taken seriously. They have a lot of work to do. If they choose to do it, we hope they work on both parts at the same time. Until a state has standards worth attaining, an accountability system keyed to its standards may do more harm than good.

Lessons

State standards are improving but most still aren't very good. More states have accountability systems, yet very few can honestly boast that they've combined good standards with tough consequences. Still, governors, federal officials, business leaders, and platoons of educators claim that American children now live and attend school in an age of "standards-based reform." What to make of all this?

We'd like to encourage the push for better standards combined with serious accountability systems. The fact that a handful of states are doing this right illustrates the fact that it's possible to do it right. And yet, 11 years after the first national education "summit" and the setting of national education goals, it's evident that standards-based reform isn't yet working very well in the United States. Some people seem quite content to let it take forever. (There is now underway, for example, what strikes us as a craven and defeatist move to simply remove the "deadline" from the national goals that weren't attained during the decade that was dedicated to that effort.) That will allow all the standards setters, enforcers, testers, monitors, and analysts to maintain full-employment, and will enable elected officials to continue to claim that they and their states are fully engaged in standards-based reform, notwithstanding the skimpy evidence that this effort is causing their students to learn more.

We're not that patient, or that willing to mislead parents and cheat kids. If only a handful of states have got it right after a decade of trying to impose top-down, standards-based accountability on a public school system that is doing its best to resist, then policymakers who are serious about boosting achievement might think twice about putting all their eggs in this one reform basket. It's painfully clear that standards-based reform is not easy to get through legislatures and state boards of education, much less to implement in the face of tenure laws, collective bargaining agreements, an alphabet soup of vested interests, and vast bureaucratic inertia. Isn't it time for states to put some other arrows in their reform bows?

Fortunately, a whole separate reform strategy is marching across America in tandem with—some would say in opposition to—standards based reform. Call it market-based reform. This strategy comes in myriad shapes and sizes, including charter schools, open enrollment, public-school choice, vouchers, etc. This strategy embraces diversity, pluralism, and competition. As we see it, these two major reform strategies complement one another. Each is apt to improve the other. Choice, after all, will only work well when reliable, standards-based consumer information is available. And focusing on academic results, as standards-based reform seeks to do, allows states to ease up on rules, regulations, and the preoccupation with "inputs."

Standards-based reform done poorly, however, could do great damage to market-style reform. Consider charter schools. In the 31 states that today have both mediocre-to-inferior academic standards *and* charter school laws, these new schools are finding themselves being held strictly accountable for reaching standards that are not altogether worth reaching. Bad standards could force otherwise exemplary charter schools to become worse, thus ruining a second reform strategy while perpetrating fraud in the name of the first strategy. That cannot be good for anyone.

Let us be clear, though. Our criticism of lousy state standards and our alarm over their link with systemic accountability is no rejection of standards-based reform. Nor is it some sort of half-veiled argument for a laissez-faire system of unbridled competition with no state accountability. We favor solid statewide academic standards. We favor serious statewide results-based school accountability that rewards success and penalizes failure on the part of children and adults alike. We *also* favor market-style reform that gives families choices among schools and that obligates schools to satisfy their clients as well as their supervisors. We favor two-way accountability—to the

statewide system *and* to the school's customers—within a framework of high-quality academic standards in core subjects for every child and school in the state. And we reject the criticism of standards-based reform that has come—with mounting frequency and rising volume in recent months—from an odd array of journalists, school-establishment types, "testing experts," and "progressive" thinkers. That criticism takes many forms but most boil down to this: the standards are unrealistically high, the tests are limiting, and the consequences are unfair.

Please understand that this is *not* what we're saying. Indeed, it's close to the opposite. Our worry is that, after all this effort and all this time, we find that few if any academic standards have been set high enough, and we believe that standards *sans* tests and consequences cannot get the job done. We wonder whether the standards on which all these accountability systems rest are themselves academically sound. In some states today—more than just two years ago—it's clear that they are. But a lot of places still have a long way to go to reach the high ground. Fine models exist. Other states should borrow from them and create for themselves a foundation on top of which it's possible to build an accountability system worthy of the name.

The State of State Standards in English Language Arts/Reading

by Sandra Stotsky

In 1997, I evaluated 28 state standards documents in the English language arts and reading. These documents either were already state-approved, some dating back to the late 1980s or early 1990s, or were drafts of the states' initial sets of standards in this field. I chose these 28 documents because a 1996 American Federation of Teachers (AFT) report had determined that 21 of them met its "common core" criterion. (I evaluated the other seven documents either because they hailed from major states or because I wanted to check my ratings against the AFT's.) Thus, three-quarters of those standards that I examined in 1997 had already been judged to be the best standards documents available at the time. If I had reviewed and graded all the other state documents available in 1997, it is likely that the distribution of grades would have been even lower. In any event, one state document received an A, five received B's, four received C's, six received D's, and 12 received F's. Thus, only 10 earned grades of C or above, while 18 got D's or F's.

This time (1999), I reviewed and rated 48 standards documents and the supplementary materials accompanying them; these came from 48 states and the District of Columbia because Iowa—on principle—has no statewide standards and Idaho had not yet completed a full set. Using the same 34 criteria and the same 0 to 4 rating scale that I had developed in 1997, the distribution of grades in this report is as follows: six A's, 13 B's, six C's, nine D's, and 15 F's. Thus, half the states earned a C or above, while the other half earned D's or F's. Even more encouraging, 19 of the 49 documents (or almost 40%) earned A's or B's, indicating that they are of high quality.

Altogether, these grades (and the ratings on which they are based) suggest that the current documents, whether final drafts or under revision, are generally stronger than those I examined earlier. At the same time, note that 30 states still do *not* deserve "honors" for their academic standards in this most fundamental of school subjects. And half of those states are operating with standards that rated an F.

As many as 28 states may have been influenced by the AFT's annual reports on standards, my 1997 monograph for the Thomas B. Fordham Foundation, and the January 1998 report issued by the Council for Basic Education (CBE). For the present round of reviews, those 28 states sent in documents and/or supplementary materials that constitute either a revision of those I had examined in 1997, drafts of documents now being revised, or documents and/or supplementary materials completed since my July 1997 monograph was released. The other 21 states appear unlikely to have been influenced by these reports: 13 of them have not changed their documents and supplementary materials, and the other eight completed their documents just before (or soon after) the 1997 monograph was released.

Signs of Improvement

To see whether state standards had improved over time, I chose 10 of my criteria on which to compare the 1997 and 1999 results. Taken together, these criteria best illuminate possible trends as well as continuing areas of weakness in state standards documents in the English language arts and reading. I compared overall results between the 28 states reviewed in 1997 and the 49 states reviewed in 1999, and noted how many of the 28 states whose documents were completed or revised after 1997, or are now being revised, received high ratings in 1999. (A few states prepared assessment material or supplementary material that addressed many of the problems in their original standards documents instead of revising them. Thus, the larger number of high scores in 1999 does not necessarily signal improvement in the states' standards documents themselves.)

Criterion A.3: ***The document expects all students to demonstrate use of Standard English, orally and in writing.*** Substantial improvement here. In 1997, only 13 of the 28 states (46%) rated a 4. In 1999, 35 of the 49 (71%) received a 4. Of these 35 states, 21 are among the 28 that have developed or revised their standards documents and/or supplementary materials since 1997.

Criterion A.4: ***The document acknowledges the existence of a corpus of literary works called American literature, however diverse its origins and the social groups it portrays.*** Modest gains. In 1997, 11 of the 28 (39%) rated a 4; in 1999, 20 of the 49 (41%) received a 4. Of these 21 states, 11 are among the 28 that have developed or revised their standards documents and/or supplementary materials since 1997.

NATIONAL REPORT CARD

State English Language Arts/Reading Standards

STATE (alphabetical)	SCORE	GRADE	'97 GRADE
Alabama	91	A	D
Alaska	44	F	-
Arizona	*77*	*B*	*B*
Arkansas	51	D	-
California	94	A	-
Colorado	44	F	F
Connecticut	56	D	-
Delaware	66	C	D
District of Columbia	90	A	-
Florida	74	B	D
Georgia	78	B	B
Hawaii	36	F	F
Idaho	-	-	F
Illinois	82	B	B
Indiana	43	F	F
Iowa	-	-	-
Kansas	39	F	F
Kentucky	44	F	-
Louisiana	80	B	-
Maine	76	B	-
Maryland	84	B	-
Massachusetts	*94*	*A*	*A*
Michigan	*27*	*F*	*F*
Minnesota	45	F	F
Mississippi	65	C	D
Missouri	40	F	F
Montana	28	F	-
Nebraska	86	A	-
Nevada	80	B	-
New Hampshire	56	D	D
New Jersey	41	F	F
New Mexico	58	D	-
New York	70	C	C
North Carolina	74	B	-
North Dakota	35	F	-
Ohio	48	D	F
Oklahoma	56	D	C
Oregon	46	F	F
Pennsylvania	71	C	-
Rhode Island	15	F	-
South Carolina	78	B	-
South Dakota	70	C	-
Tennessee	38	F	F
Texas	74	B	B
Utah	61	C	C
Vermont	48	D	-
Virginia	*80*	*B*	*B*
Washington	*50*	*D*	*D*
West Virginia	78	B	-
Wisconsin	86	A	C
Wyoming	56	D	-

STATE (by rank)	SCORE	GRADE	RANK ('97 Rank)
California	94	A	1 (-)
Massachusetts	*94*	*A*	*1 (1)*
Alabama	91	A	3 (15)
District of Columbia	90	A	4 (-)
Nebraska	86	A	5 (-)
Wisconsin	86	A	5 (6)
Maryland	84	B	7 (-)
Illinois	82	B	8 (2)
Louisiana	80	B	9 (-)
Nevada	80	B	9 (-)
Virginia	*80*	*B*	*9 (3)*
Georgia	78	B	12 (5)
South Carolina	78	B	12 (-)
West Virginia	78	B	12 (-)
Arizona	*77*	*B*	*15 (4)*
Maine	76	B	16 (-)
Florida	74	B	17 (11)
North Carolina	74	B	17 (-)
Texas	74	B	17 (9)
Pennsylvania	71	C	20 (-)
New York	70	C	21 (10)
South Dakota	70	C	21 (-)
Delaware	66	C	23 (13)
Mississippi	65	C	24 (13)
Utah	61	C	25 (7)
New Mexico	58	D	26 (-)
Connecticut	56	D	27 (-)
New Hampshire	56	D	27 (12)
Oklahoma	56	D	27 (8)
Wyoming	56	D	27 (-)
Arkansas	51	D	31 (-)
Washington	*50*	*D*	*32 (15)*
Ohio	48	D	33 (17)
Vermont	48	D	33 (-)
Oregon	46	F	35 (19)
Minnesota	45	F	36 (19)
Alaska	44	F	37 (-)
Colorado	44	F	37 (18)
Kentucky	44	F	37 (-)
Indiana	43	F	40 (24)
New Jersey	41	F	41 (28)
Missouri	40	F	42 (22)
Kansas	39	F	43 (27)
Tennessee	38	F	44 (23)
Hawaii	36	F	45 (21)
North Dakota	35	F	46 (-)
Montana	28	F	47 (-)
Michigan	27	F	48 (26)
Rhode Island	15	F	49 (-)
Idaho	-	-	- -
Iowa	-	-	- -

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1997, at which time they were reviewed and graded by Dr. Stotsky. They were not reviewed a second time for this report

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Criterion A.6: ***The document expects explicit and systematic instruction in decoding skills in the primary grades as well as the use of meaningful reading materials.*** Substantial improvement. In 1997, 9 states (32%) *seemed* to have this expectation and rated a 4; in 1999, 22 (45%) *seemed* to have this expectation and earned a 4. Of these 22 states, 13 are among the 28 that have developed or revised their standards documents and/or supplementary materials since 1997.

Criterion B.2: ***The standards are grouped in categories reflecting coherent bodies of scholarship or research in the English language arts.*** Small decline. In 1997, 13 states (46%) rated a 4; in 1999, 22 (45%) did. Of these 22 states, 13 are among the 28 that have developed or revised their standards documents and/or supplementary materials since 1997.

Criterion C.2: ***The standards clearly address reading (and viewing) to understand and use information through the grades. They include progressive development of reading skills and a reading vocabulary, and knowledge and use of a variety of textual features, genres, and reading strategies for academic, occupational, and civic purposes.*** Substantial improvement. In 1997, only five states (18%) rated a 4; in 1999, 16 (33%) did. Of these 16 states, four have developed or revised their standards documents and/or supplementary materials since 1997.

Criterion C.3: ***The standards clearly address the reading (or viewing), interpretation, and critical evaluation of literature.*** Modest gains. In 1997, 15 (54%) rated a 3; in 1999, 31 (63%) earned a 3. Of these 31 states, 19 are among the 28 that have developed or revised their standards documents and/or supplementary materials since 1997.

Criterion C.6: ***The standards clearly address research processes.*** Modest gains. In 1997, 21 states (75%) received a 3 or 4; in 1999, 39 states (80%) rated a 3 or 4. Of these 39 states, 24 are among the 28 that have developed or revised their standards documents and/or supplementary materials since 1997.

Criterion D.3: ***The standards are measurable.*** Substantial improvement. In 1997, 15 states (54%) rated a 3 or 4; in 1999, 33 (67%) earned a 3 or 4. Of these 33 states, 21 are among the 28 that have developed or revised their standards documents and/or supplementary materials since 1997.

Criterion D.5a: ***The standards are of increasing intellectual difficulty at each higher educational level.*** Modest gains. In 1997, 12 states (43%) rated a 3; none rated a 4. In 1999, 25 (51%) rated a 3 or 4; three earned 4's. Of these 25 states, 17 are among the 28 that have developed or revised their standards documents and/or supplementary material since 1997.

Criterion D.5b: ***The standards index or illustrate growth through the grades for reading by referring to specific reading levels or to titles of specific literary or academic works as examples of a reading level.*** Modest gains. In 1997, five (18%) rated a 3 or 4 (of these five, four earned 4's). In 1999, 11 (22%) rated a 3 or 4 (of these 11, nine earned 4's). Of these 11 states, 10 were among the 28 that have developed or revised their documents since 1997. (A few states that had provided examples in an earlier document, such as Hawaii, did not do so in the revised document.)

On these 10 criteria, I found substantial improvement (the share of states rating a 3 or a 4 rose by at least 10 percentage points) in four, modest gains in five, and a small decline in one. On the whole, these comparisons revealed some encouraging trends: (1) A majority of the states (33) have learned how to create measurable standards. (2) Half the states now create standards of increasing intellectual difficulty through the grades. (3) Many more states now include a well-developed set of vocabulary objectives through the grades (16 in 1999, compared to five in 1997). (4) All but 13 states make their expectations clear for the use of Standard English orally and in writing. (5) Most states (39) have good standards in place for research processes. Finally, more states (11 in 1999, compared to five in 1997) now specify the level of reading difficulty they expect, especially in high school. They do this either by designating the reading levels they want at the grade levels to be assessed or by providing examples of well-known literary works whose level of difficulty is clear to teachers (and parents).

Note that a high proportion of the 28 states that have completed or revised their standards documents and/or supplementary materials since 1997 received a high rating on the criteria presented above. The shares ranged from 36% (10 of 28) to 86% (24 of 28), with most around 50%. This suggests that the newer standards are generally stronger than the older; perhaps the criticisms voiced in the past several years have had a positive effect. Still, we have a long way to go before all states have strong and measurable academic standards that drive assessments in the English

language arts and reading and shape local curricula and classroom instruction in ways that increase expectations for all students.

Continuing Challenges

A disturbing number of states (16) still don't have measurable standards (even if, as is the case in some states, their assessments are good). An even larger number (24) failed to create standards that reflect increasing levels of intellectual difficulty, thus providing poor guidance for curriculum development. To some extent, this problem stems from the failure of a large number of states (27) to use a coherent and research-based set of categories for generating standards.

The most serious problems with the 1999 standards documents arose in the teaching of reading and the study of literature. Only 22 states seem to expect systematic phonics instruction. Given the ample and definitive research evidence available on this question, that number should be far larger. (I use the word "seem" because one cannot be sure what some states really expect in this area, as few specify the use of decodable texts in the primary grades.) The small number of states with well-developed vocabulary objectives (16) is also cause for concern, given the importance of vocabulary knowledge in the development of reading ability, an ability that is crucial to learning in all subject areas.

The standards for literary study, while pleasing in some respects (31 states now have reasonably good literary standards), pose a different problem. Only 21 states specify the study of American and British literature, and many of those provide no other specifics such as literary periods, literary traditions, or core authors (never mind titles) with which all American students should be familiar before they graduate from high school. At stake is not only the literary and cultural heritage of the English-speaking world but our civic culture itself. It is in danger of being lost due to a failure of nerve—an unwillingness on the part of state officials to hammer out some literary and cultural specifics in standards documents that will serve to guide state assessments and, in turn, the development of local curricula. It is heartening that a few states have begun to specify reading levels to indicate the level of difficulty they expect in high school. But this positive trend does not compensate for the failure to specify suitable content for the K-12 English curriculum.

The State of State Standards in History

by David Warren Saxe

On the whole, state history standards have improved significantly in the past two years. For the vast majority of states, history is now part of the educational infrastructure. Forty-six states plus the District of Columbia offer some sort of history content in their state standards, up from 37 in 1998. While the quality continues to vary widely, the trend is undeniably positive.

Highlights:

- Of the 10 states that have added standards since 1998, Arizona tops the list with an outstanding set of history standards that earned an A. Impressive starts were also made by Oregon, which earned a B, and by Mississippi, Nevada, South Carolina, and South Dakota, each earning a C for its initial effort.

- Sixteen states improved their history scores, seven by a full letter grade (Alabama C to B, California B to A, Delaware F to D, Georgia D to C, Kentucky F to D, New York F to D, and North Carolina F to D); three by *two* full letter grades (Missouri F to C, Nebraska F to C, and Oklahoma D to B); and, most notably, two raised their scores *three* full letter grades (Kansas F to B and Maryland F to B).

- Nine states revised their standards but showed no improvement in grades. Five of these continued to earn failing grades (Illinois, New Jersey, Washington, Wisconsin, and Vermont).

- One state and the District of Columbia revised their standards, but their efforts led to lower grades. Connecticut dropped from C to D and the District of Columbia from C to F.

- Only Iowa, Montana, and Rhode Island did not offer any state history standards for review, and Idaho has only completed standards for grades 9-12.

The number of passing grades changed impressively and, consequently, the number of failing grades dropped. Only four states had earned A's and B's in 1998, but ten now deserve honors grades. Twenty-five states earned D's and F's in 1998, compared with 24 now. Although a troubling 15 states still get failing marks, the country's overall gains in this subject are noteworthy. They demonstrate not only that it is possible to write history standards that explain to teachers, students, and parents in clear and accountable terms just what is to be taught and learned, but also that it's possible to improve upon the formula. Moreover, a number of states have shown that it's possible to write history standards with state and local resources rather than relying on the dictates of national organizations and special interest groups.

Content Makes a Comeback

What makes the greatest difference in the improvement (or lack thereof) in state scores is, in a word: content. States that earned higher grades or demonstrated improvements provided stronger content in their standards. States that had flat or lowered scores either did not provide enough significant content or continued to omit it altogether.

Note that this evaluation did not expect state history standards to conform to a predetermined list of dates, events, persons, facts, concepts, ideas, books, or other markers; I left such decisions to the sovereign states. Nonetheless, I did expect every state to identify what it deemed to be important and significant items from history. I held states accountable for specifying precisely what students should know about U.S. history and relevant world and European history. Those states that continued to receive failing grades were not able—for whatever reasons—to do so.

A second source of better grades in many states was special interests' diminishing influence in preparing state history standards. The prime example is California, where standards writers rejected the once-obligatory "mentioning" of every factional and demographic interest group.

In those states that scored D's and F's, on the other hand, special interests evidently continue to exert undue influence. Many of the states with poor grades still use the ahistorical approach found in the so-called "national social studies standards" promulgated by the National Council for the Social Studies (NCSS). Nationally, though, the trend seems to be to recognize NCSS as one of many special interests that strive to influence state standards. (While most states still use the term "social studies" to describe that part of the curriculum that includes history, fewer are using the NCSS model as their template for history instruction.) This represents progress. So does the growing distance between most states' standards and the so-called "voluntary national history standards" that were

NATIONAL REPORT CARD

State History Standards

STATE (alphabetical)	SCORE	GRADE	'98 GRADE
Alabama	47	B	C
Alaska	6	F	F
Arizona	57	A	-
Arkansas	2	F	F
California	60	A	B
Colorado	21	D	D
Connecticut	18	D	C
Delaware	23	D	F
District of Columbia	8	F	C
Florida	26	C	C
Georgia	31	C	D
Hawaii	2	F	-
Idaho	-	-	-
Illinois	16	F	F
Indiana	32	C	C
Iowa	-	-	-
Kansas	51	B	F
Kentucky	20	D	F
Louisiana	33	C	C
Maine	19	D	D
Maryland	49	B	F
Massachusetts	49	B	B
Michigan	15	F	F
Minnesota	4	F	F
Mississippi	26	C	-
Missouri	31	C	F
Montana	-	-	-
Nebraska	35	C	F
Nevada	33	C	-
New Hampshire	26	C	C
New Jersey	11	F	F
New Mexico	2	F	F
New York	25	D	F
North Carolina	18	D	F
North Dakota	14	F	-
Ohio	18	D	D
Oklahoma	43	B	D
Oregon	38	B	-
Pennsylvania	0	F	F
Rhode Island	-	-	-
South Carolina	27	C	-
South Dakota	31	C	-
Tennessee	21	D	D
Texas	41	B	B
Utah	26	C	C
Vermont	10	F	F
Virginia	59	A	A
Washington	7	F	F
West Virginia	30	C	C
Wisconsin	11	F	F
Wyoming	2	F	-

STATE (by rank)	SCORE	GRADE	RANK	('98 Rank)
California	60	A	1	(2)
Virginia	59	A	2	(1)
Arizona	57	A	3	(-)
Kansas	51	B	4	(27)
Maryland	49	B	5	(26)
Massachusetts	49	B	5	(4)
Alabama	47	B	7	(5)
Oklahoma	43	B	8	(16)
Texas	41	B	9	(3)
Oregon	38	B	10	(-)
Nebraska	35	C	11	(36)
Louisiana	33	C	12	(10)
Nevada	33	C	13	(-)
Indiana	32	C	14	(6)
Georgia	31	C	15	(14)
Missouri	31	C	15	(34)
South Dakota	31	C	15	(-)
West Virginia	30	C	18	(8)
South Carolina	27	C	19	(-)
Florida	26	C	20	(9)
Mississippi	26	C	20	(43)
New Hampshire	26	C	20	(11)
Utah	26	C	20	(13)
New York	25	D	24	(24)
Delaware	23	D	25	(23)
Colorado	21	D	26	(15)
Tennessee	21	D	26	(17)
Kentucky	20	D	28	(30)
Maine	19	D	29	(18)
Connecticut	18	D	30	(12)
North Carolina	18	D	30	(31)
Ohio	18	D	30	(19)
Illinois	16	F	33	(20)
Michigan	15	F	34	(22)
North Dakota	14	F	35	(-)
New Jersey	11	F	36	(36)
Wisconsin	11	F	36	(21)
Vermont	10	F	38	(28)
District of Columbia	8	F	39	(7)
Washington	7	F	40	(25)
Alaska	6	F	41	(29)
Minnesota	4	F	42	(32)
Arkansas	2	F	43	(33)
New Mexico	2	F	43	(35)
Hawaii	2	F	43	(40)
Wyoming	2	F	43	(-)
Pennsylvania	0	F	47	(36)
Idaho	-	-	-	-
Iowa	-	-	-	-
Montana	-	-	-	-
Rhode Island	-	-	-	-

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1998, at which time they were reviewed and graded by the Foundation and its reviewers. They were not reviewed a second time for this report.

22

promulgated in 1994 amid much furor.

While the flaws of the national history standards are now well known, fewer people understand the problems with the NCSS approach. Briefly stated, that organization has abandoned efforts to promote a balanced, history-rich curriculum. Instead, NCSS has taken up the banner of multiculturalism and diversity-based citizenship education by promoting a rather politicized and non-history-based curriculum. It is a far cry from the open, honest study of the past. Thus it is a good thing that more states appear to be treating the NCSS recommendations as one among many sources of factional pressure rather than as a model to embrace.

Arizona illustrates the point. That state has taken a bold step in curriculum development by basing its new standards on Constitutional authority rather than special interests and politics. As the opening statement notes:

> To maintain the Union that supports our freedoms, citizens [sic] must rely on the knowledge, skills, and character of its citizens and those they elect to public office. Critical to the preservation and improvement of America's republican form of government is the study of America's founding principles, namely the principles as detailed in the United States Constitution, the Declaration of Independence, and in the *Federalist Papers*. The authority of the Arizona standards rests with Article IV, Section 4 of the United States Constitution. The relevant and operative phrase states "The United States shall guarantee to every state in this Union a Republican Form of Government...." Since public education is a state obligation, its design must, by constitutional authority, contain some form of schooling that supports our republican form of government.
>
> —*Arizona Standards in History, Civics, Geography, and Economics draft* (August 1999)

With this statement, Arizona became the first state to claim the guarantee clause (Article IV, Section 4) as the explicit foundation for its education standards in this field. And what follows is a set of praiseworthy standards, save for one shortcoming: they are not organized grade-by-grade, but rather are presented in grade clusters. Nonetheless, for states seeking to review, revise, or rewrite their teaching of history, Arizona and California presently represent the gold standard, together with Virginia, which was already there two years ago.

Setbacks

Special interests harmed state history standards in New Jersey and the District of Columbia. New Jersey's standards are simply dismal. They appear to reject the basic belief that human beings have free will. They reject the notion that the greatest service of public education is the development of what Jefferson called the "autonomous citizen" who is fully aware, informed, and capable of participating in our republican form of government. These standards are among the most "politically correct" in the nation.

To be sure, the state downplays the significance of its standards. Its document says, "The New Jersey Social Studies Curriculum Framework is not a mandated social studies curriculum.... [While the] social studies program should be founded on a core of solid, discipline-based knowledge ... it will be a district's decision as to the core, or the foundation, of the local program." In other words, these are not really statewide standards. Localities will determine the essential core of what is actually taught to children. Perhaps that's just as well, when one examines what's in the document. Consider this example:

> Discuss the internment of Japanese Americans during World War II. Review the stated reasons for this unfortunate action, and explain that the decision to intern these people was based on the unfair apprehension that Japanese Americans would be loyal to Japan, the wartime enemy, rather than to their adopted country. Emphasize that the U.S. government's internment of Japanese American citizens was government-sponsored discrimination. Students research internment policies of other governments in recent history and learn that the governments have found popular support for such policies, however unwise and unfair.
>
> —*New Jersey Social Studies Curriculum Framework, Final Draft* (March 1999)

Nobody is defending the wartime internment of Japanese Americans, which most people (the present author included) view as an ignoble and unfortunate episode in our history. But is the state supposed to tell children and teachers what to think about it? Note the judgmental cues "unfortunate," "unfair apprehension," and "emphasize that ... [internment] was government-sponsored discrimination." This example includes no discussion of actual wartime events or of contemporary developments in Asia, including the treatment by Japan of Chinese and Korean civilians

(much less of U.S. prisoners-of-war). For students to understand such matters, they must also come to understand the nature of war. On that count, these "standards" explain little. Other woeful examples abound in the New Jersey document, which seems not to agree that the appropriate role of history is to understand the past as best we can, not to judge it by today's standards and sensibilities.

Another major disappointment was the District of Columbia's history standards. These standards, after rejecting a promising earlier version that earned a C in 1998, have been revised completely. They now reflect history as seen through the prisms of race, gender, sexual orientation, and class. For example, one standard, repeated in several grades, states:

> The student will interpret how individuals, groups, and institutions in the U.S. have been both tools of justice and injustice towards groups of people distinguished by gender, race, sexual orientation, and class.
>
> —*History Benchmarks, Content standard 4, Grade 5, page 25*

As with the New Jersey standards, students in schools that stay faithful to these standards are unlikely to learn the basics of U.S. history. I hope that, as these standards move into practice, teachers, students, and parents will call for their thorough overhaul.

Final Thoughts

Some states that worked hard to revise their state standards will be disappointed with their poor grades. The grades do not reflect effort, but, rather, specific results. And let me note, in advance of laments that this review is based on some sort of "conservative agenda," that several fairly conservative states also received low grades. What makes the difference in a state's grade has nothing to do with its politics. It has to do with its intellectual criteria for history. Good history is not bound by ideology or party. It entails the study of the past in such a way that truth, honesty, and solid objective work are expected from all children. I would argue that such study is essential for the continuation of the Union. Conversely, the surest road to ruin is to forget who we are and where we have come from.

Happily, this review confirms that good history standards can and are being written. The next challenge is to ensure that textbooks, statewide tests, teacher preparation programs, certification requirements, in-service training, and college history departments develop complementary programs, policies, and practices.

The State of State Standards in Geography

by Susan Munroe

During the second half of 1997, we at the Casados Group gathered and analyzed documents relating to geography standards from 38 states and the District of Columbia. The Thomas B. Fordham Foundation published our findings in February 1998. In this second round, we repeated the process using the same criteria, evaluating state standards documents that are entirely new or extensively revised that we received by mid-September 1999.

This year, 46 jurisdictions are included in the report. Two states, Iowa and Rhode Island, have no standards and do not plan to develop any. Idaho, Montana, and Pennsylvania have standards in process.

Changes in scores during this two-year period reflect some progress. In 1998, the average score was a low D. This time, appraising new contributions combined with scores of states that made no changes, the average went up to a C-. This is good, if not spectacular, headway.

The total increase in the number of states receiving honors grades (A's and B's), however, shows real gains. Most encouraging is the addition of four states to the "A" category. The District of Columbia, Kansas, Louisiana, and South Carolina now join 1998's Colorado, Indiana, and Texas in that distinguished group, making a total of seven states that received a grade of 80 or higher. D.C scored a low C in 1998 (61.5) but moved up to 81. Kansas jumped from a D of 56 to 80. Louisiana moved from a solid C (67.5) to 83. South Carolina received an incomplete last time and an 83 this time. Colorado remains the star of this field with the most thorough and rigorous standards. It scored 90 in 1998. The new "A" states have done a commendable job: If their standards are coupled with sound instruction, assessment, and accountability, we can assume their children will learn geography well.

There were three B's in 1998 (Michigan, New Hampshire, and West Virginia, all of whose scores remain the same). This year, five states joined them—Alabama with a 70, Arizona with a 78, Florida with a 72.5, and Maryland and Missouri, both scoring 70, bringing the combined "B" group to eight states. Alabama beefed up its elementary and middle school fundamentals, thus adding five points to its former score. Similar adjustments below the high school level increased Florida's score by 7.5 points. Maryland undertook a massive revision of its standards and boosted its score by a whopping 43 points. Missouri's score is based upon the state's submission of entirely new assessment material. And Arizona, incomplete in 1998, entered the field with a strong B of 78.

We also looked to see how well states that submitted standards in the previous round ranked on their new submissions (see list below). This measure ranks states by how many points their scores have risen as a consequence of going back to the drawing board. Six states—see the asterisks in the table that follows—jumped two or more full letter grades. For them, clearly, the renewed effort was worthwhile. Note, though, that eight of the 18 states rated in both rounds still have grades lower than C, showing that they will need to do much more to make their standards thorough and challenging.

1.	* Maryland	(+43)	from an F (27) to a B (70)
2.	* Oklahoma	(+26)	from an F (36) to a C (62)
3.	* Kansas	(+24)	from a D (56) to an A (80)
4.	Georgia	(+22.5)	from an F (35.5) to a D (58)
5.	* Delaware	(+21.8)	from an F (42.2) to a C (64)
6.	North Dakota	(+21)	from an F (15) to an F (36)
7.	* DC	(+19.5)	from a C (61.5) to an A (81)
8.	New York	(+18)	from an F (40) to a D (58)
9.	California	(+ 15.5)	from a D (50.5) to a C (66)
9.	*Louisiana	(+15.5)	from a C (67.5) to an A (83)
11.	Kentucky	(+14)	from an F (26) to an F (40)
12.	New Jersey	(+13)	from an F (37) to a D (50)
13.	Florida	(+7.5)	from a C (65) to a B (72.5)
14.	Mississippi	(+7)	from an F (46) to a D (53)
15.	Vermont	(+6)	from an F (22) to an F (28)
16.	Alabama	(+5)	from a C (65) to a B (70)
17.	Connecticut	(+3)	from an F (49) to a D (52)
18.	Missouri	(+3)	from a C (67) to a B (70)

States Receiving C's

Nine states received C's in 1998: three of them, Alaska, North Carolina, and Utah, remain in that category, as they did not send in substantive revisions. They are joined this year by five more states: California, Delaware, Nevada, Oklahoma, and South Dakota. Two of these states did significantly better than before: California now displays a welcome emphasis on geography learning that is independent of history. It raised its score by 15.5 points. Delaware, because it added performance indicators, saw its score rise by 21.8.

The other three states to join the "C" group—Oklahoma, Nevada, and South Dakota—all have new standards. Oklahoma submitted weak standards last

NATIONAL REPORT CARD

State Geography Standards

STATE (alphabetical)	SCORE	GRADE	'98 GRADE
Alabama	70.0	B	C
Alaska	64.0	C	C
Arizona	78.0	B	.
Arkansas	23.0	F	F
California	66.0	C	D
Colorado	90.0	A	A
Connecticut	52.0	D	F
Delaware	64.0	C	F
District of Columbia	81.0	A	C
Florida	72.5	B	C
Georgia	58.0	D	F
Hawaii	33.0	F	.
Idaho	.	.	C
Illinois	51.5	D	D
Indiana	85.0	A	A
Iowa	.	.	.
Kansas	80.0	A	D
Kentucky	40.0	F	F
Louisiana	83.0	A	C
Maine	30.5	F	F
Maryland	70.0	B	F
Massachusetts	50.0	D	D
Michigan	79.0	B	B
Minnesota	22.0	F	F
Mississippi	53.0	D	F
Missouri	70.0	B	C
Montana	.	.	.
Nebraska	43.0	F	.
Nevada	69.0	C	.
New Hampshire	76.0	B	B
New Jersey	50.0	D	F
New Mexico	41.0	F	F
New York	58.0	D	F
North Carolina	65.0	C	C
North Dakota	36.0	F	F
Ohio	54.0	D	D
Oklahoma	62.0	C	F
Oregon	42.0	F	.
Pennsylvania	.	.	.
Rhode Island	.	.	.
South Carolina	83.0	A	.
South Dakota	62.0	C	.
Tennessee	40.0	F	F
Texas	80.5	A	A
Utah	66.5	C	C
Vermont	28.0	F	F
Virginia	59.0	D	D
Washington	34.0	F	F
West Virginia	72.0	B	B
Wisconsin	31.0	F	F
Wyoming	26.0	F	.

STATE (by rank)	SCORE	GRADE	RANK	('98 Rank)
Colorado	90.0	A	1	(1)
Indiana	85.0	A	2	(2)
Louisiana	83.0	A	3	(7)
South Carolina	83.0	A	3	(-)
District of Columbia	81.0	A	5	(15)
Texas	80.5	A	6	(3)
Kansas	80.0	A	7	(17)
Michigan	79.0	B	8	(4)
Arizona	78.0	B	9	(-)
New Hampshire	76.0	B	10	(5)
Florida	72.5	B	11	(10)
West Virginia	72.0	B	12	(6)
Alabama	70.0	B	13	(10)
Maryland	70.0	B	13	(34)
Missouri	70.0	B	13	(8)
Nevada	69.0	C	16	(-)
Utah	66.5	C	17	(9)
California	66.0	C	18	(20)
North Carolina	65.0	C	19	(10)
Alaska	64.0	C	20	(13)
Delaware	64.0	C	20	(24)
Oklahoma	62.0	C	22	(29)
South Dakota	62.0	C	22	(-)
Virginia	59.0	D	24	(16)
Georgia	58.0	D	25	(30)
New York	58.0	D	25	(26)
Ohio	54.0	D	27	(18)
Mississippi	53.0	D	28	(23)
Connecticut	52.0	D	29	(22)
Illinois	51.5	D	30	(19)
Massachusetts	50.0	D	31	(21)
New Jersey	50.0	D	31	(28)
Nebraska	43.0	F	33	(-)
Oregon	42.0	F	34	(-)
New Mexico	41.0	F	35	(25)
Kentucky	40.0	F	36	(35)
Tennessee	40.0	F	36	(26)
North Dakota	36.0	F	38	(39)
Washington	34.0	F	39	(31)
Hawaii	33.0	F	40	(-)
Wisconsin	31.0	F	41	(32)
Maine	30.5	F	42	(33)
Vermont	28.0	F	43	(37)
Wyoming	26.0	F	44	(-)
Arkansas	23.0	F	45	(36)
Minnesota	22.0	F	46	(37)
Idaho	.	.	.	(16)
Iowa	.	.	.	.
Montana	.	.	.	.
Pennsylvania	.	.	.	.
Rhode Island	.	.	.	.

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1998, at which time they were reviewed and graded by the Foundation and its reviewers. They were not reviewed a second time for this report.

time but its latest document is almost completely new.

States Receiving D's

Six states scored D's in 1998. Of those, Massachusetts, Ohio, and Virginia did not submit new material and Illinois's submission was virtually unchanged. Kansas and California enhanced their scores and left the "D" range, where they were replaced by five states: Connecticut, Georgia, Mississippi, New Jersey, and New York. Though these grades are weak, they do reflect improvement from the F's scored last time (Georgia's score improved by 22.5 points). Thus nine states now fall into the "D" category.

States Receiving F's

Just seven states received new F's, compared with 18 in 1998. The states are Hawaii, Kentucky, Nebraska, North Dakota, Oregon, Vermont, and Wyoming. Tennessee submitted material that was not relevant to the appraisal and Washington's and Wisconsin's submissions did not have significant changes, meaning that their scores remained the same. Hawaii, Nebraska, Oregon, and Wyoming submitted no standards in 1998. Their new submissions are weak, with scores of 33, 43, 42, and 26 respectively, and are marred by inconsistencies and confusion. Kentucky pulled up its score from 26 to 40, North Dakota moved from 15 to 36, and Vermont from 22 to 28, yet these states' standards are weak and need serious rethinking. A total of 14 states now fall into this category.

General Characteristics

Our criteria come under two main headings. One, General Characteristics, rates a state's standards on six usability measures that are not specific to geography. The characteristics are: clear, jargon-free writing; specificity; balance; use of strong verbs; inclusion of benchmarks; and overall guidance for teachers. Each characteristic is measured on a scale of 0-3 with a total of 18 as a maximum score for the entire category.

The chart below shows the states' progress by comparing scores received in 1998 (covering 39 jurisdictions) with the scores received for 2000's report (covering 46 and including states not re-reviewed since 1998).

Overall, general characteristics rose 8%. Use of strong verbs increased by 7%. The most significant increase lay in the category "Guidance to Teachers," which rose 38%. It's good that new attention is being directed to the considerable needs of educators in the classroom. It can't have happened soon enough!

Comparison of Average "General Characteristics" Scores, 1998 & 2000

	1998	2000	% Change
Clear Writing	2.54	2.61	+3.5%
Specificity	1.97	2.02	+2%
Balance	2.55	2.68	+5%
Strong Verbs	2.47	2.65	+7%
Benchmarks	1.83	1.85	+1%
Guidance	1.44	1.99	+38%
(maximum 3 points each)			
Total	12.81	13.80	+8 %
(maximum 18)			

Comprehensiveness and Rigor in Content and Skill Areas

The second set of criteria looks at the standards' Comprehensiveness and Rigor—the quality of geographic knowledge and skills required of students. This measure, for the most part, is unique to geography. It is this measure, covering geography's fundamentals (categorized as "the World in Spatial Terms"), and its categories of "Places and Regions," "Physical Systems," "Human Systems," "Environment and Society," "Skills, Applications and Organization," that tells us whether the teaching of this subject is being taken seriously at the state level. Again, the chart below compares average scores received in 1998 with those received in 2000.

The overall average rose 15%—a healthy increase. The two lowest-scoring categories in 1998 saw the biggest percentage increases this time. "Applications" moved up by a substantial 25%, indicating new emphasis on requiring students to use geographic information that they have learned. "Physical Systems" saw a much-needed increase in attention. It rose 16% over 1998. But these two categories need continued reinforcement as they still come in much lower than any other category. "Spatial Terms" saw a strong 15% increase. "Places and Regions" and "Skills" tied for a 14% increase.

Comparison of Average "Comprehension &

Rigor" Scores, 1998 and 2000

	1998	2000	% Change
Spatial Terms	1.70	1.95	+15%
Places & Regions	1.62	1.85	+14%
Phys. Systems	1.15	1.34	+16%
Human Systems	1.73	1.95	+13%
Enviro. & Soc.	1.64	1.80	+10%
Skills	1.68	1.93	+14 %
Applications	1.31	1.64	+25%
Organization *(maximum 3 points each)*	1.87	2.09	+11%
Total *(maximum 24)*	12.70	14.55	+15%

Reducing the statistics to grade clusters is also revealing. Elementary scores increased by 9%. States do best teaching fundamentals (Spatial Terms) in grades pre-K through 4. True in 1998, it is of some significance this round as there is a 13% increase in "Spatial Terms" scores, to 2.37 out of a possible three points. If this concentration on teaching and learning the primary elements of geography truly permeates pre-K through grade 4 classrooms, children will be exposed to significant subject matter regarding geography's basics, a welcome event.

In 2000, middle grades scores increased by 15% overall. They are best in coverage of human systems (2.01) followed by fundamentals (1.97). In 1998, "Human Systems" (2.11) was followed by "Skills" with 1.69, then "Spatial Terms" (1.67). This was not the case in 1998 when "Skills" came in second. Scores are definitely better this time than last, but there are no significantly strong scores.

Scores in high school also rise by 15% overall. "Skills," closely followed by "Human Systems," received the most attention in 1998. In 2000, "Skills," with 2.10, closely followed by "Applications," with 2.07, received greatest emphasis. "Skills" rose by .32 and "Applications" by .49. This shows new emphasis on thinking geographically and using geography to solve problems. But, while scores are better, none is remarkable.

In Conclusion

Most states submitting new information this year show a marked increase in the use of material from the national geography standards. There appears to be heightened awareness of the national standards as a model and resource. Similarly, we see within various states' standards serious pains taken to capture geography's spatial perspective. We also find decreased emphasis on social studies and more on actual geography.

The strength of the elementary grades' focus on fundamentals, and the overall rise in average scores in middle and upper grades, can only be termed good news. And the strong showing of honors states—15 in all—shows welcome progress. This accumulation of evidence should encourage those teachers, professors, and national organizations that are working to get solid geography taught to U.S. K-12 students. While they are making significant strides, however, much still needs to be done.

The State of State Standards in Mathematics

by Ralph A. Raimi

In February 1998, Lawrence Braden and I reviewed the math standards of 47 states and Japan. (We shall include the District of Columbia as a "state" for discussion purposes and I shall refer to the 1998 report as Fordham I.) The state standards documents reviewed for Fordham I were all prepared by the end of 1997, most of them during 1996 or 1997, as federal initiatives at that time had greatly accelerated the burgeoning "standards movement." The present report ("Fordham II") evaluates only those new or revised documents received by August, 1999, about two years later. Since we obtained no new document from Japan in the interim, and since Japan is not one of our states anyhow, we shall omit Japan from this summary of comparisons between the states' performances as graded in the two reports.

Of the 47 states evaluated in Fordham I, 15 have published no substantial revision in the interim and we presume they are still using the documents reviewed there. One state (Idaho) has stated that its earlier document is no longer official state policy, but has sent us only an incomplete and tentative version of its probable replacement; we have therefore given no grade to Idaho in Fordham II. This makes Idaho the only state, apart from Iowa—which as a matter of policy publishes no state standards—for which Fordham II has no grade, either new or carried over from Fordham I. Three states that we didn't evaluate in Fordham I have now sent standards that had been in preparation at that time. Of the 31 others included in Fordham I, all but Idaho have now published or sent to us replacement standards or revisions of the earlier ones.

In all, Fordham I evaluated 47 states. Their average score (16 was the maximum, zero the minimum) was 6.5, which warranted a D grade. Fordham II evaluated 34 new documents, which, along with the 15 "carry-over" scores for the states which made no changes, earned an average score of 8.2, falling into the C range. A marked improvement, especially when you consider the fact that almost one-third of the states have made no changes since 1997. If you remove these 15 states from the calculation, the rise in average score is even more impressive.

Some of the improvements are spectacular. Whereas only three states (California, North Carolina, and Ohio), earned an A in Fordham I, the addition of three more states in Fordham II—Kansas, Mississippi, and South Dakota—now make it six. (California and Ohio retained their earlier documents, California having added only some clarifying summary material to its standards. North Carolina has printed a formal revision that differs little from its predecessor.) We had given Kansas, Mississippi, and South Dakota a D, a B, and an F respectively in Fordham I, an enormous change. The list of states that improved their mathematics standards by two grade levels or more follows:

State	1998	2000
District of Columbia	D	B
Hawaii	F	C
Kansas	D	A
Kentucky	D	B
Maryland	F	C
Nebraska	F	C
Oklahoma	F	B
South Carolina	D	B
South Dakota	F	A

Unfortunately, two states that sought to improve their standards with new documents ended up scoring one or two grade levels lower as a result. Tennessee, which we discussed in depth in Fordham I, was the more notable of these. At the time of Fordham I, Tennessee had two documents, an old but sound curriculum guide for the high school level, which we rated excellent, and a new one for K-8, written by another group of authors in enthusiastic accordance with recent educational theories. We considered it baneful. The "average" we were asked to report was of course quite meaningless. Tennessee got a mediocre score though neither of the two documents was mediocre by itself. By the time of Fordham II, however, Tennessee had replaced its old high school standards with a document matching the K-8 standards in language and spirit, a pity.

Trends

A majority of the other states that wrote revisions did not make violent changes, though the scores do show that more states improved than worsened. We analyzed national improvement by quoting average nationwide scores for each of our four criteria separately. That is, we scored each criterion on a scale of 0 to 4, 4 being the best, and the table below shows that the average score for Clarity, over the 47 states evaluated in Fordham I, was 1.5 out of a possible 4. The corresponding figure for the 49 states evaluated in Fordham II is 2.1, an improvement of 40%, and so with the other three criteria. The last column,

NATIONAL REPORT CARD

State Mathematics Standards

STATE (alphabetical)	SCORE	GRADE	'98 GRADE
Alabama	11.5	B	B
Alaska	5.9	D	C
Arizona	12.2	B	B
Arkansas	5.5	D	F
California	16.0	A	A
Colorado	5.4	D	D
Connecticut	4.7	D	D
Delaware	9.1	C	C
District of Columbia	10.0	B	D
Florida	5.5	D	D
Georgia	12.2	B	B
Hawaii	7.5	C	F
Idaho	-	-	F
Illinois	6.8	D	D
Indiana	9.3	C	C
Iowa	-	-	-
Kansas	14.9	A	D
Kentucky	11.0	B	D
Louisiana	3.7	F	F
Maine	5.2	D	F
Maryland	9.4	C	F
Massachusetts	5.5	D	F
Michigan	2.3	F	F
Minnesota	3.2	F	-
Mississippi	13.0	A	B
Missouri	2.7	F	F
Montana	6.5	D	F
Nebraska	7.7	C	F
Nevada	9.3	C	-
New Hampshire	8.0	C	C
New Jersey	9.2	C	C
New Mexico	2.5	F	F
New York	10.4	B	B
North Carolina	13.9	A	A
North Dakota	6.0	D	D
Ohio	13.5	A	A
Oklahoma	10.3	B	F
Oregon	5.8	D	D
Pennsylvania	7.0	C	D
Rhode Island	1.0	F	F
South Carolina	10.3	B	D
South Dakota	14.2	A	F
Tennessee	3.3	F	C
Texas	10.8	B	B
Utah	11.7	B	B
Vermont	9.5	C	C
Virginia	11.8	B	B
Washington	2.5	F	F
West Virginia	12.5	B	B
Wisconsin	7.4	C	C
Wyoming	6.2	D	-

STATE (by rank)	SCORE	GRADE	RANK ('98 Rank)
California	16.0	A	1 (1)
Kansas	14.9	A	2 (30)
South Dakota	14.2	A	3 (41)
North Carolina	13.9	A	4 (2)
Ohio	13.5	A	5 (3)
Mississippi	13.0	A	6 (6)
West Virginia	12.5	B	7 (4)
Arizona	12.2	B	8 (5)
Georgia	12.2	B	8 (9)
Virginia	11.8	B	10 (7)
Utah	11.7	B	11 (8)
Alabama	11.5	B	12 (9)
Kentucky	11.0	B	13 (26)
Texas	10.8	B	14 (12)
New York	10.4	B	15 (11)
Oklahoma	10.3	B	16 (32)
South Carolina	10.3	B	16 (30)
District of Columbia	10.0	B	18 (28)
Vermont	9.5	C	19 (14)
Maryland	9.4	C	20 (34)
Indiana	9.3	C	21 (14)
Nevada	9.3	C	21 (-)
New Jersey	9.2	C	23 (13)
Delaware	9.1	C	24 (17)
New Hampshire	8.0	C	25 (21)
Nebraska	7.7	C	26 (34)
Hawaii	7.5	C	27 (43)
Wisconsin	7.4	C	28 (19)
Pennsylvania	7.0	C	29 (23)
Illinois	6.8	D	30 (20)
Montana	6.5	D	31 (41)
Wyoming	6.2	D	32 (-)
North Dakota	6.0	D	33 (22)
Alaska	5.9	D	34 (18)
Oregon	5.8	D	35 (25)
Arkansas	5.5	D	36 (37)
Florida	5.5	D	36 (27)
Massachusetts	5.5	D	36 (42)
Colorado	5.4	D	39 (24)
Maine	5.2	D	40 (33)
Connecticut	4.7	D	41 (28)
Louisiana	3.7	F	42 (42)
Tennessee	3.3	F	43 (16)
Minnesota	3.2	F	44 (-)
Missouri	2.7	F	45 (36)
New Mexico	2.5	F	46 (37)
Washington	2.5	F	46 (37)
Michigan	2.3	F	48 (42)
Rhode Island	1.0	F	49 (47)
Idaho	-	-	- -
Iowa	-	-	- -

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1998, at which time they were reviewed and graded by the Foundation and its reviewers. They were not reviewed a second time for this report.

Adjusted Change, takes account of the fact that about one-third of the states did not write a new document between the two evaluations, and thus contributed nothing to the comparison. If you leave these states out of the account, the contributions of those that gave us new documents in 1999 raised the scores of those states by about the percentages in the last column. That this is not quite a direct comparison—three states we studied in Fordham II were not in Fordham I, and vice-versa for Idaho—doesn't change the general tenor of the figures given.

Comparison of Average Scores over all States

	1998	2000	Change	Adjusted Change
Clarity	1.5	2.1	40% rise	60% rise
Content	2.0	2.4	20% rise	30% rise
Reason	0.9	1.1	20% rise	30% rise
Negatives	2.0	2.6	30% rise	45% rise
Total Score	6.5	8.2	26% rise	40% rise

Most striking is the fact that we found the largest improvements in the first category, Clarity. This was obvious to us in our reading, well before we calculated the totals and made comparisons. The kind of prose found in so many of the state standards evaluated in Fordham I was appallingly vague, so general as to be unusable for guiding statewide testing or the choice of textbooks. Alas, this sort of writing remains widespread, but it is heartening to see that a good number of states made successful efforts to stamp that out.

Correlated with vagueness (and poor prose generally) were some of the negative qualities, "false doctrine" and "inflation," especially the latter, that entered the scores under the fourth rubric, Negative Qualities. Pretentious writing is "inflation" at the same time as it is unclear or indefinite, as defined under the Clarity rubric. False doctrine is similarly undesirable, but might be definite and clear just the same. We have not calculated any correlations among our criteria, however, since the purpose of the evaluation was not primarily to produce a final grade, but rather to point out, item by item, how the states were performing on the items named. If encouraging improvement in one category entails improvement in some others, all the better, provided there is some difference in what is measured. At any rate, it is not surprising that Negative Qualities showed improvement alongside Clarity, though not as much.

The other two rubrics showed a 20% improvement each, or 30% ("Adjusted change") when only those states that wrote new or revised documents are counted. But percentages alone do not provide the best measure of the worrisome state of Reason in math standards, since of all the four categories Reason had the most room for improvement. The Reason average score was 0.9 in Fordham I. Bringing it up to 1.1 may be a large percentage rise, but it's still a long way from 4.0.

The Content demanded by the state standards is also a bit more rigorous than in 1997. This is a good sign, especially as there is inevitable inertia in curriculum change: one would not expect rapid change in subject matter and its pacing. Still, one way in which we could improve Content without a revolution in subject matter would be to reduce the number of curricular headings at each grade level. Alas, the American math curriculum remains, overall, "a mile wide and an inch deep," and still needs dredging.

A Call for Reason

Even a model list of content items is a poor guide without a proper attitude towards the nature of the subject. The injection of reason into the lessons, grade by grade, is or should be a national priority, whether in the teaching of the most elementary algorithms of arithmetic or in the coupling of algebra with geometry in the middle and high schools. Even some states that have sought courageously to advance the pacing of subject matter, moving more algebra into the middle and junior-high schools for example, often have scanted the very thing that would make this extra content possible and memorable, rather than routine, incoherent, and ultimately incomprehensible.

The State of State Standards in Science

by Lawrence S. Lerner

In the nearly two years since the publication of *State Science Standards: An Appraisal of Science Standards in 36 States* (hereinafter referred to as *SSS*), there has been a flurry of writing and revision of academic standards all across the nation, science very much included. Of the 36 states whose science standards were evaluated in *SSS*, more than half (19) have made substantial revisions to or have completely rewritten their standards. Ten more states now have standards available for scrutiny, making a total of 46 states that currently have science standards. Iowa remains an exception, having decided to leave all such matters to local school boards. Alaska's standards, which were too brief to bear evaluation, are unchanged. The District of Columbia's, Idaho's, and Pennsylvania's standards are all in development.

In evaluating new or revised standards, we applied the same criteria as those employed in *SSS*, applying them as much as possible in the same way. In the 18 cases where comparison of ratings is possible, four states made substantial improvements, four made more modest improvements, five were unchanged, one rated a slightly lower score, and four scored significantly lower after the revision. Note, however, that, of the eight states whose standards showed improvement, three had already rated so high that their scores could not increase much.

The Results

Have the two years of intense activity since the publication of *SSS* resulted in significant changes in the quality of science standards? Briefly, the answer seems to be no. In *SSS*, of the 36 states whose standards were evaluated, the distribution is: A, 17%; B, 19%; C, 19%; D, 19%; and F, 25%. For the 46 states evaluated in the present round, the distribution is: A, 20%; B, 22%; C, 13%; D, 20%; and F, 26%. The slight improvement, however, mainly results from the coarse letter-grade spans. The median score remains essentially unchanged, having moved from 61 (81% or C) to 64 (85% or C).

If we consider only the ten states that did not have standards in 1998, or whose standards were not available at the time of the *SSS* study, the grade distribution is: A, 20%; B, 20%; C, 10%; D, 30%; and F, 20%. The median score is thus 56 (75% or D). Given the small sample, it is risky to attribute significance to the difference between these standards and those of states that previously had them.

The good news is the abundance of fine models that states can use as a starting point to improve those state science standards that still fall short. In addition to various national models, several states now have splendid standards. What's more, they are varied in format to suit the needs of those who wish to choose diverse approaches.

Continuing Problems

As we stressed in *SSS*, almost all of the state standards either shortchanged or ignored certain important subject areas within science. This still holds true. With few exceptions (noted in the discussions of individual states), states deal poorly with the mathematical aspects of the sciences—especially the physical sciences—at higher grade levels. The same is true of extra-solar-system astronomy, of human evolution, of the mass of evidence supporting biological evolution other than the fossil record, of human health and disease in relation to their biological foundations, and of the nature of scientific revolutions. Laboratory work and fieldwork generally receive insufficient explicit treatment. The term "energy" is used a great deal but is seldom defined with sufficient precision to make its applications intelligible. Momentum, an equally important physical concept, is rarely mentioned. Only a few states make clear the seamless connections among the historical sciences, so that the student can clearly see the continuum from cosmological evolution to solar-system evolution to geological evolution to biological evolution.

Some states treat biological evolution very gingerly or not at all. Some never use the word but do as good a job as possible given that restriction. Unfortunately, it is impossible to build the life sciences around their theoretical basis without mentioning the basis itself. Other states touch on the subject as briefly as possible, inserting one or two items at grade 8 or (more commonly) during high school, as if the subject were a curious sidelight of biology. A few states insert items involving such creationist buzzwords as micro- and macro-evolution, as though this minor distinction were worthy of specific mention. Kansas and Alabama are special cases (Kansas's review is included herein; Alabama's standards have not changed since 1998). In the case of Kansas, the deletion of cosmology, geology, and biological evolution weighed heavily on its failing score.

Whatever the specific tactics employed, these approaches all shortchange the student in two ways.

NATIONAL REPORT CARD

State Science Standards

STATE (alphabetical)	SCORE	GRADE	'98 GRADE
Alabama	51	D	D
Alaska	-	-	-
Arizona	71	A	A
Arkansas	46	F	F
California	75	A	A
Colorado	59	D	D
Connecticut	70	B	B
Delaware	74	A	B
District of Columbia	-	-	-
Florida	37	F	F
Georgia	40	F	D
Hawaii	55	D	A
Idaho	-	-	-
Illinois	68	B	B
Indiana	74	A	A
Iowa	-	-	-
Kansas	7	F	C
Kentucky	58	D	F
Louisiana	64	C	B
Maine	56	D	D
Maryland	56	D	-
Massachusetts	72	A	C
Michigan	51	D	-
Minnesota	71	A	-
Mississippi	29	F	F
Missouri	64	C	C
Montana	49	D	-
Nebraska	70	B	D
Nevada	65	C	-
New Hampshire	43	F	F
New Jersey	71	A	A
New Mexico	31	F	F
New York	60	C	C
North Carolina	73	A	-
North Dakota	41	F	F
Ohio	68	B	-
Oklahoma	29	F	-
Oregon	69	B	C
Pennsylvania	-	-	-
Rhode Island	71	A	A
South Carolina	70	B	D
South Dakota	68	B	-
Tennessee	43	F	F
Texas	66	C	C
Utah	69	B	B
Vermont	69	B	B
Virginia	49	D	D
Washington	68	B	B
West Virginia	36	F	F
Wisconsin	60	C	C
Wyoming	31	F	-

STATE (by rank)	SCORE	GRADE	RANK	('98 Rank*)
California	75	A	1	(2)
Delaware	74	A	2	(9)
Indiana	74	A	2	(1)
North Carolina	73	A	4	(-)
Massachusetts	72	A	5	(16)
Arizona	71	A	6	(4)
Minnesota	71	A	6	(-)
New Jersey	71	A	6	(4)
Rhode Island	71	A	6	(4)
Connecticut	70	B	10	(7)
Nebraska	70	B	10	(24)
South Carolina	70	B	10	(23)
Oregon	69	B	13	(14)
Utah	69	B	13	(9)
Vermont	69	B	13	(9)
Illinois	68	B	16	(12)
Ohio	68	B	16	(-)
South Dakota	68	B	16	(-)
Washington	68	B	16	(12)
Texas	66	C	20	(15)
Nevada	65	C	21	(-)
Louisiana	64	C	22	(7)
Missouri	64	C	22	(17)
New York	60	C	24	(19)
Wisconsin	60	C	24	(19)
Colorado	59	D	26	(21)
Kentucky	58	D	27	(32)
Maine	56	D	28	(22)
Maryland	56	D	28	(-)
Hawaii	55	D	30	(2)
Alabama	51	D	31	(24)
Michigan	51	D	31	(-)
Montana	49	D	33	(-)
Virginia	49	D	33	(27)
Arkansas	46	F	35	(28)
New Hampshire	43	F	36	(31)
Tennessee	43	F	36	(29)
North Dakota	41	F	38	(36)
Georgia	40	F	39	(26)
Florida	37	F	40	(30)
West Virginia	36	F	41	(32)
New Mexico	31	F	42	(34)
Wyoming	31	F	42	(-)
Mississippi	29	F	44	(35)
Oklahoma	29	F	45	(-)
Kansas	7	F	46	(18)
Alaska	-	-	-	-
District of Columbia	-	-	-	-
Idaho	-	-	-	-
Iowa	-	-	-	-
Pennsylvania	-	-	-	-

*Please note that 1998 rank was out of 36 states.

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1998, at which time they were reviewed and graded by the Foundation and its reviewers. They were not reviewed a second time for this report.

First, they rob the student of an understanding of the vast field of the life sciences. Second, they make it difficult or impossible for the student to see how science works, mislead the student as to what is science and what is not, and convey the misconception that biology is somehow not as "scientific" as physics or chemistry. To a lesser extent, the same is true of modern astronomy and geology.

The use of computers for such purposes as word processing, constructing web pages, or making graphs is too often subsumed under "science." Understanding the workings of computers is certainly legitimate science or technology, but the use of software packages is not, as useful as it may be.

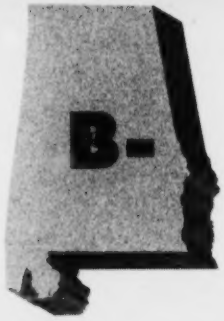
Historical treatments are mostly spotty and seldom go beyond the naming of a few famous scientists, whose names often seem to have been chosen at random.

More broadly, nearly all of the standards documents suffer from what may be called the "laundry-list syndrome." It is not too difficult to make a list of concepts that students should know at the end of a given grade or grade span, and there is nothing wrong with doing so. But in the sciences, more is needed. The sciences are characterized by the tight, logical theoretical structures that serve as the framework on which facts (or observations or data), known or yet to be discovered, can be placed so as to reveal a cogent whole. Unfortunately, it is not really possible to reduce scientific theory to a series of items without loss of meaning and understanding. Such constructs as the too-frequently encountered "Eighth-graders will investigate the Big Bang theory of the origin of the universe" are of very limited use.

The solution to this difficulty is not abstruse. One needs merely to introduce each cluster of items with a brief passage that explains why and how the information that follows forms a cogent and useful whole. North Carolina does this admirably; California with somewhat less success. Writing such passages requires a real grasp of the "big picture" of the sciences, but there is no shortage of persons who can do that.

Many state science standards documents were based to a greater or lesser extent on one or more of the well-known national models published during the past decade or so. Most frequently cited (or evident in the language used) were the American Association for the Advancement of Science's *Benchmarks for Science Literacy* (Oxford University Press, 1993), and the National Academy of Science's *National Science Education Standards* (National Academy Press, 1996). (In individual state reviews, they are referred to as *AAAS* and *NAS*, respectively.) Neither is above criticism and, indeed, some of the best standards modeled after them exceed them in quality. In too many cases, however, the product turns out to be inferior to the model.

Alabama



Report Card	1998	2000
English	D	A
History	C	B
Geography	C	B
Math	*B*	*B*
Science	*D*	*D*
Cum. GPA	1.80	2.80
Overall Grade	C-	B-

English

Alabama has completely revised its earlier standards document and now has one that's first-rate in almost every way. The 1993 document had many strengths, which are retained. In addition, the new document addresses extremely well the limitations in the earlier one. The standards are now organized grade by grade in coherent strands. They draw on NCTE's original six "language" processes but in a way that doesn't make "viewing" and "presenting" two new language processes. It is the best scheme I've seen that's based on NCTE's original notion. Moreover, most of Alabama's standards are measurable. Laudably, the new document also expects explicit and systematic instruction in decoding skills in the primary grades while also suggesting the quality of the independent reading it hopes for through the grades. There is a good vocabulary strand running almost consistently from the primary grades through grade 10. Finally, Alabama offers examples of literary works to indicate the expected difficulty level in most of the secondary grades, making explicit mention of the study of American and British literature, as well as of some works or authors it expects students to read during the high school years. For the most part, Alabama now has English language arts standards that are sufficiently specific, comprehensive, and demanding to lead to a high and common core of academic expectations for all its students.

History

The *Alabama Course of Study* contains standards that are specifically focused on history. From grades 4 through 12, the history standards are as good as any in the nation. There is some evidence in the front matter that multiculturalism is an important focus, which is a problem until the state spells out just what it means in this area. Unfortunately, there is virtually no history introduction or preparation prior to grade 4, and European and world history are delayed until grade 8. A comprehensive history program would take better advantage of the enthusiasm and curiosity of younger children. It would seem that holding all history instruction until the ages of 9 or 10, and deferring world history completely until the ages of 13 or 14, is too late for many children to gain a proper start in this subject.

Geography

Alabama receives a B with a score of 70, an increase of five points since 1998. The state's standards have been cleaned up and added to. Grades K-4 have improved the most while middle-grade scores show slight increases. Few changes were made at the high school level, so scores there remain low.

Alabama has added new geography knowledge regarding fundamentals to both kindergarten and grade 6 map-and-globe skills sections. Some of the new material is challenging. For example, the state asks third graders to address problems regarding absolute location by using grid systems. The use of examples increases the standards' teacher-friendliness. And there are some interesting innovations in the material. The state asks kindergartners to "estimate distance using non-standard measures" (e.g., giving book lengths

rather than inches and feet). K-6 grade-by-grade sections on Graphic Literacy and Reference Skills now fall under one heading called Information Literacy.

Some of the language surrounding benchmarks is soft. Young students are asked to "develop an awareness of" or "become familiar with" certain material. This is not measurable and replaces the more specific verb: "know."

Math

The state supplied no evidence that its standards have been revised since 1998.

Science

The state supplied no evidence that its standards have been revised since 1998. ■

Alaska

Report Card	1998	2000
English	-	F
History	*F*	*F*
Geography	*C*	*C*
Math	C	D
Science	-	-
Cum. GPA	1.33	0.75
Overall Grade	D+	D-

English

Alaska has one of the shortest standards documents in the land: less than a dozen pages. Although length does not correlate with quality, so brief a document is unlikely to contain the details needed for high-quality English language arts/reading standards. And this is so with Alaska's. It superficially addresses various areas of the language arts; only writing seems to be covered adequately, research and reading to a lesser extent. Many important matters remain unclear (e.g., whether systematic phonics instruction is expected in the primary grades).

Part of the problem lies in its organizing strands. The document first lists the content standards, grouped into five categories: one mixes writing and speaking; another mixes literary study, viewing, reading, and listening; a third is about strategy use and project work; a fourth deals largely with research; and a fifth deals with forms of "cultural" respect—a murky area for standards. The document then lists the performance standards for reading, literary study, and writing. Nevertheless, despite its appearance in both sets of standards, literary study is very underdeveloped in this document. It seldom mentions literary genres, elements, and devices, and there are no literary or cultural specifics. Worse, the document stresses having students make connections between the literature they read and their personal experiences. In addition, although most of the standards in the document are measurable, many of the objectives are similar across grade levels. With these limitations, Alaska's standards cannot be judged as explicitly supporting high and common academic expectations for all its students. Much will depend on what is actually contained in the statewide assessments. It is not possible to predict their quality and rigor from these standards.

History

The state supplied no evidence that its standards have been revised since 1998.

Geography

Alaska retains its grade of C with a score of 64. A new format and good copy-editing have improved the appearance and readability of the original but no substantive changes have been made to the 1996 document, which was reviewed in 1998.

Math

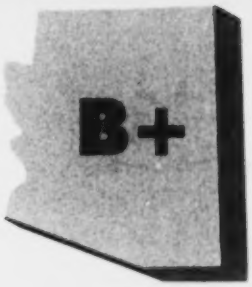
The *Content Standards*, which form a brief and general introduction to the *Performance Standards*, ask for deductive reasoning in part D4, but apart from some vague exhortations ("in both concrete and abstract contexts," it explains) there is little indication in the *Performance Standards* of just where this reasoning is to take place. The *Performance Standards*, in fact, imply or permit much less content than the corresponding document we reviewed in 1998, especially in the crucial areas of arithmetic and geometry. There is little downright bad advice, and a good program could be taught consistent with these standards, but the omissions would also permit a very weak one.

More than omissions, there are inconsistencies in the level of the expectations themselves, which suggests inflation or carelessness. For example, Item 6 under Geometry (Ages 11-14) says, "[U]se coordinate geometry to represent and interpret relationships defined by equations and formulas including distance and midpoint." Yet the distance and midpoint formulas are the very beginning of coordinate geometry, so cautioning the reader to include them renders suspect the sincerity of the very ambitious opening of the same sentence, which would indeed be a great deal to ask at ages 11-14.

Science

The *Alaska Content Standards*, unchanged from the 1997 version, is a very short, ungraded document intended to do no more than set forth general principles. It does not contain enough information to be evaluated on the basis of the criteria used here. ■

Arizona



Report Card	1998	2000
English	*B*	*B*
History	-	A
Geography	-	B
Math	*B*	*B*
Science	A	A
Cum. GPA	3.33	3.40
Overall Grade	B+	B+

English

The state supplied no evidence that its standards have been revised since 1997.

History

The Arizona Standards In History, Civics, Geography, and Economics are outstanding in nearly every respect. The one area of concern is that they are not presented grade-by-grade. However, the clusters are tight and may prove workable. That aside, Arizona's history standards are among the nation's very best. Teachers, students, and parents will easily understand their expectations and evaluation experts will have little trouble identifying what is to be tested. The history presentation is balanced, and specifically tied to the worthy task of providing an education for the maintenance of "the Union that supports our freedoms." The Arizona Standards reflect the serious obligation that states have to deliver the very best to each child.

Geography

Arizona receives a B with a score of 78. It has developed interesting geography standards that are rich, imaginative, and exacting. The integral aspect of geography as a discipline is nicely demonstrated. There is an emphasis on the patterns of geography that encourages students to think spatially. Standards have more definition and specificity in the early grades and then get broader. Still, they're excellent at every level. While there are no benchmarks, per se, the performance objectives are filled out nicely in most instances, making the standards measurable. A nine-page glossary includes a good quantity of well-considered geography terms.

Arizona has extensively used *Geography for Life: The National Geography Standards* to develop the material. Each of six grade-level clusters focus on one geography standard: Readiness (kindergarten); Foundations (grades 1-3); Essentials (grades 4-5); Essentials (grades 6-8); Proficiency (grades 9-12); and Distinction. Kindergarten standards encompass one content area that covers some fundamental knowledge followed by two performance objectives. The number of content areas and performance objectives increases as students progress through school.

Elementary (K-5) standards are demanding. Students are asked to cope with cardinal directions and grids in early grades (1-3). Standards are comprehensive except in the area of physical systems. Material on ecosystems is covered relatively well within the content area of human/environment interaction. Information regarding migration, settlement, and economic activities also appears in this content area, showing how geography's various elements can be aggregated without diminishing its whole. The emphasis on doing geography while demonstrating learning is strong. And students are asked to apply what they have learned—for example, by using the spatial perspective "to describe a community issue."

The middle-school (6-8) standards score even higher. While they do not explicitly include the term "mental maps," one objective asks students to draw a map after

"being given a description." This grade-level cluster nicely emphasizes patterns—essential to geography's spatial point of view. All content areas, including physical systems, rate highest scores, and skills and applications receive good attention.

High school standards emphasize skills and applications (the uses of geography) using a sophisticated level of geography learning. Students are asked to interpret maps "using fundamental cartographic principles to infer geographic relationships, etc. ..." and to analyze "the ways technology has affected the definition of and access to and use of resources, etc." While standards at this level tend to include too wide a variety of information and thus are almost too comprehensive, they remain very rigorous.

Separate standards have been developed for a "Distinction Level." This appears to be an interesting and demanding honors course that asks students, for example, to analyze the relationships among social, economic, and political factors and agricultural land use ..." and to interpret patterns of population geography with emphasis on "basic concepts of medical geography"—exciting applications indeed.

Math

The state supplied no evidence that its standards have been revised since 1998.

Science

Arizona's standards, clear though relatively brief in 1997, earned an A in the previous review. Although the changes in the 1999 version are not extensive, they are very significant. The principal shortcoming of the 1997 version was the way in which evolution was masked. Though the content was treated in acceptable fashion, the word "evolution" was never mentioned, and the general effect was to distance evolution from its essential place at the center of the life sciences. This shortcoming has now been remedied by the addition of a number of explicit standards. These two are typical:

Use scientific evidence to demonstrate that descent from common ancestors produced today's diversity of organisms over more than 3.5 billion years of evolution (Standard 4SC-P9).

Explain prominent scientific theories of the origin of the universe (Big Bang Theory), the solar system (formation from a nebular cloud of dust and gas), and life forms (evolution) (Standard 6SC-P1).

Unfortunately, human evolution is still not mentioned at all.

There have been a few other minor changes in the interest of clarity. It is too bad, however, that Standard 5SC-E3 PO1 ("Define energy") has been removed from grades 4-5. "Define the law of conservation of energy" is retained at grades 6-8; one hopes that the student asked to do this knows by then what energy is! Addition of material concerning universal gravitation (5SC-P7) and the laws of thermodynamics (5SC-P8) at grades 9-12 is laudable but probably inadequate to be very useful. Modern astronomy is still shortchanged. All in all, however, a good set of standards has been improved. ■

Arkansas

Report Card	1998	2000
English	-	D
History	*F*	*F*
Geography	*F*	*F*
Math	F	D
Science	*F*	*F*
Cum. GPA	0.00	0.4
Overall Grade	F	F

English

This review encompassed a set of documents put out in 1998: the state's standards document, sample K-4 grade-level benchmarks, and sample curriculum models for grades 1-4. These documents are written clearly, and the standards are organized in a reasonably coherent way. Further, they indicate that phonics instruction will be systematic and explicit. Yet they contain many limitations. One major deficiency is the quality of the standards themselves. Many of them are not specific enough to be useful, and many of the benchmarks are not true benchmarks or standards; they are too broad, too process- or strategy-oriented, not completely intelligible, or they are simply statements of broad philosophical goals (e.g., "students understand the goal of reading is to construct meaning"). In addition, individual learning expectations do not consistently show increasing intellectual difficulty over the grades; there are more of them from grade to grade, but many are broad statements of expectations that could apply to all grade levels. Oddly enough, some of the more difficult expectations occur in grades K-4 and are unrealistic for those levels (e.g., "evaluate the role media plays [sic] in focusing attention and forming opinion").

Arkansas could strengthen considerably its academic expectations for all students by developing clear and measurable standards in all areas of English language arts and reading (writing, literary study, and Standard English convention are all weak areas), and by incorporating literary and cultural specifics, such as core authors, titles, literary periods, and literary traditions. Without reading and literary expectations geared to specific reading levels in the standards themselves, Arkansas cannot assure its citizens that its public schools have the potential to develop a new generation capable of maintaining this country's civic culture—its basic political principles, institutions, and processes—through knowledge of its literary and intellectual culture.

History

The state supplied no evidence that its standards have been revised since 1998.

Geography

The state supplied no evidence that its standards have been revised since 1998.

Math

The *Curriculum Frameworks* (1998) are accompanied by *Sample Curriculum Models*, and *Sample Grade Level Benchmarks* for grades K-4, all of them substantial pamphlets that contribute bulk, but little of value, to the *Framework* for mathematics. Even the *Framework* contains a long and unnecessary Glossary. There are some classroom *Scenarios* as well, some unrealistic. At the K-4 level ("Height of Pyramids"), "... her students were to develop a method [an Egyptian] might have used ..." and to test their strategies the teacher has them go outside and determine the height of the flagpole. This at K-4, in a document that, at the 5-8

level, has students "develop strategies for comparing quantities using ratios and proportions (e.g., fractions, scales)," and at that only "with use of manipulatives and technology."

Scenarios for grades 5-8 and 9-12 are, on the other hand, very "real-life" but not very mathematical. The *Framework* as a whole asks for very little reasoning, very little traditional content, and no genuine theorems ("informal" geometric proofs are mentioned), but pays much attention to calculators and field trips.

Science

The state supplied no evidence that its standards have been revised since 1998. ■

California

Report Card	1998	2000
English	-	A
History	B	A
Geography	D	C
Math	A	A
Science	A	A
Cum. GPA	3.00	3.60
Overall Grade	B	A-

English

California was one of the last states to complete a standards document in the English language arts and reading, but the 1998 document was worth waiting for. It has clear, specific, and measurable standards, and addresses all areas of the English language arts and reading well and comprehensively. (Indeed, that becomes one of its weaknesses: it contains too many lower-level objectives in many areas.) It has a strong reading strand, with detailed vocabulary objectives at each grade level and a clear subsection on expository criticism. It also has a well-developed literature strand, with some literary specifics for American and world literature, as well as a clear subsection on literary criticism. The chief limitation of this document, one shared by all other states except Alabama and Massachusetts, is its failure to identify some core authors or titles that would ensure that all California students graduate from high school with a common core of knowledge about the country's literary and civic history and culture. An indication of desired reading levels at the secondary grades would also be helpful.

History

The *California History Standards* exemplify "best in nation" for history standards writing, presentation, and content. The only problems left to resolve are how to ensure that these exemplary standards are properly taught—and that student achievement is well assessed. The standards are written with clarity and easily measurable. Teachers and parents will have no trouble identifying what should be taught and learned in all grades. The content is solid and the presentation coherent and challenging in both U.S. and World-European histories. The critique of "watered-down" history certainly does not apply here.

Geography

California receives a C with a score of 66, an increase of 15.5 points since 1998. The present history/social science model includes more serious geography throughout most of the K-12 years than did the edition reviewed in 1998. The absence of benchmarks and the content area of physical geography lowered its score. In addition, specificity is not strong.

Students in California's elementary grades should have a firm grounding in geography's fundamentals and in content areas regarding human systems and environment and society. Middle-grade standards include substantial geography regarding location of places and migration and settlement of peoples. High school standards scored lower, however. Ninth grade has no geography standards and the senior year's subjects, Principles of American Democracy and Principles of Economics, contain no geography. A topic called Analysis Skills, which includes "reasoning, reflection, and research skills" for geography, is presented separately from content material for K-5, 6-8, and 9-12 grade clusters.

Math

California's *Standards* were the subject of acrimonious debate in late 1997, and the final version was published in rather bare-bones fashion to meet a legal deadline.

It was that version that was graded and commented on in Fordham I, and while those of us who thought well of it understood its implied setting, much of the public and the mathematics-education community took the terse listing of mathematical requirements as an invitation to mindless memorization of lists of formulas, and criticized it mercilessly on that account. As published now, the *Standards* themselves remain unchanged, but its sections are interleaved with explanatory commentary that gives continuity to the text, and makes plainer the attitude that teachers and textbook writers must bring to the subject to satisfy the *Standards*' authors, who—many of them university math professors—have no stake in public mindlessness. Implementation of so ambitious a document will surely present problems. Regarding this, a *Framework* for mathematics has also just been published by California, incorporating these *Standards* and much else, but too late for review at this time.

Science

In 1998, our evaluation was based on the *California Science Framework*, the closest thing to a Standards document that then existed. We now evaluate the 1998 *Science Content Standards, Grades K-12*, currently available in a pre-publication version. The *Framework* is currently being revised with a view to consistency with the new *Standards*.

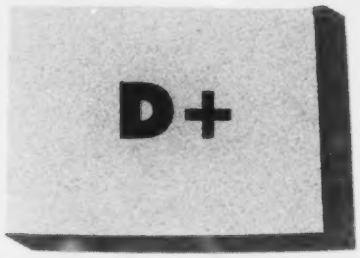
Overall, the document is superbly done. It is scientifically correct, written in clear language, and well organized. In particular, each subsection is introduced by a one-sentence statement that ties the following material together. (It would be better to have a short paragraph, as in North Carolina's standards, but a sentence is a step in the right direction.)

Ideas are introduced at proper grade levels, and the grade-by-grade follow-through is excellent. There is enough to challenge students but care has been taken to avoid overwhelming them.

The physical sciences are dealt with carefully and systematically. In the upper grades, the fact that these sciences are essentially quantitative is made explicit. For example, kinetic energy is defined as $\frac{1}{2} mv^2$ and the electric force as qE. Chemical formulas are introduced early. In the earth sciences, plate tectonics is introduced as the central organizing principle of geology in sixth grade. The life sciences are organized around evolution as they must be, with elements introduced at grade 2 and a formal treatment at grade 6. Laboratory work and numerical analysis are taken seriously; bar graphs are introduced to first graders, and microscopes are used at the second-grade level. One may criticize the late introduction of extra-solar-system astronomy at grades 9-12, but at least there is adequate if somewhat brief treatment.

All in all, California now boasts one of the best science standards presently available. ■

Colorado



Report Card	1998	2000
English	F	F
History	D	D
Geography	A	A
Math	D	D
Science	D	D
Cum. GPA	1.40	1.40
Overall Grade	D+	D+

English

The state supplied no evidence that its standards have been revised since 1997.

History

The state supplied no evidence that its standards have been revised since 1998.

Geography

No score change. Colorado retains its grade of A with a perfect score of 90. The state has elaborated on its exemplary standards (reviewed in 1998) by adding two useful indices. One outlines the standards' major categories and one identifies important geographic terms.

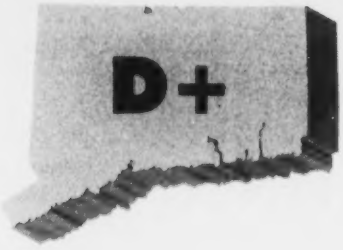
Math

The state supplied no evidence that its standards have been revised since 1998.

Science

The state supplied no evidence that its standards have been revised since 1998. ■

Connecticut



Report Card	1998	2000
English	-	D
History	C	D
Geography	F	D
Math	*D*	*D*
Science	*B*	*B*
Cum. GPA	1.50	1.40
Overall Grade	C-	D+

English

This review covers the following documents, all dated 1998: *Curriculum Framework; Read, Read, Read; Common Core of Learning; Improving Reading Competency; Learning Resources and Information Technology Framework;* and *Draft Design of the Third Generation of the Connecticut Mastery Test.* To get a good sense of what Connecticut expects of its students, it is necessary to read through all these documents because the Curriculum Framework itself has many limitations. Its standards contain few details about writing, language conventions, vocabulary study, and listening/speaking objectives, and many are either extremely broad (e.g., "students will explore and respond to contemporary literature"), statements of dogma (e.g., students are to understand that "a single text may elicit a wide variety of responses"), or highly process- or strategy-oriented (e.g., "students use word recognition strategies to perfect reading fluency in ever more sophisticated works"), and thus not really measurable. In addition, many standards do not show adequate increases in difficulty over the grades; only the examples of the standards do. On the other hand, Connecticut has a fine set of research standards in its Learning Resources document, and does offer examples of its standards throughout.

Connecticut could strengthen its standards document considerably by reducing the emphasis it places on reader response and writing process, by using a clearer and better organizing scheme, by coming up with more specific and measurable standards, and by ensuring that the examples really exemplify the standards they supposedly do. It also needs to incorporate into its standards a core of authors, works, literary traditions, and literary periods—some cultural and literary specifics—in order to assure its citizens that its schools can develop educated citizens capable of maintaining this country's civic culture.

History

The Connecticut "content standards" in history are virtually content-free. They seem to rest on the assumption that "historical thinking skills" will lead students to "develop an understanding of the major historical periods, issues and trends in United States history, world history, and Connecticut and local history." Yet they mainly demonstrate that statewide standards that hold teachers and students accountable for learning specific historical knowledge and skills have yet to be written in Connecticut.

Geography

Connecticut receives a D with a score of 52, an increase of 3 points since 1998's review. The geography standards remain lackluster even though they emphasize the spatial perspective, the discipline's unique point of view.

Generally, the standards are too broad and too vague. And they're presented in muddled and confusing fashion. Elements usually found in one category appear in others for no apparent reason. The problem may lie in the compression of standards material. Categories properly dealt with alone are commingled, then distributed under disparate but famil-

iar headings. This causes considerable confusion.

So little emphasis is placed on geography's fundamentals that the present reviewer is hard pressed to know how or when a student will be exposed to important primary concepts and basic vocabulary. Some new elements have been added to round out information, increasing scores for elementary standards, but not enough of the material has been reworked to make the standards compelling. Scores for middle- and high school grades are weak. One good feature: the content area of Physical Systems, often neglected when geography is taught within the social studies, is included in these standards.

Math

The state supplied no evidence that its standards have been revised since 1998.

Science

No significant change from Second Draft (August 1997) to final version (March 1998).

■

Delaware

Report Card	1998	2000
English	D	C
History	F	D
Geography	F	C
Math	C	C
Science	B	A
Cum. GPA	1.20	2.20
Overall Grade	D+	C+

English

The documents reviewed include the "End of Cluster Expectations and Performance Indicators" for grades K-5 (February 1999), 6-8 (May 1998), and 8-12 (March 1999), all moderate revisions of Delaware's 1995 document. These documents have many strengths. Delaware's standards, expectations, and performance indicators overall are clear, specific, and measurable. For the most part, they show clear increases in intellectual difficulty through the grades, and most areas of the English language arts and reading are covered well, especially the strands for writing and research. Further, it seems that decoding skills are to be taught in the earliest grades; there are detailed expectations for the use of written language conventions; and study of the history of the English language now appears in the high school years.

However, there are still important limitations in these documents. The chief ones relate to literary study. There are no literary or cultural specifics in the standards or indicators suggesting the depth and breadth of literary study (e.g., no core titles, authors, literary periods, or traditions—not even a mention of American or British literature by name). And these documents retain the anti-literary expectations of the 1995 document. Students are dogmatically expected in grade 8 to "acknowledge the possibility of a variety of interpretations of the same text" (which is not a standard but a moralistic injunction), and, to make matters worse, in grades 9-12 students are to "understand that a single text will elicit a wide variety of responses, each of which is valid from a personal, subjective perspective." There is no point teaching literature at all if anything a student says in response to a text is "valid" (an inappropriate use of the word in this context). There are irresponsible interpretations of a text, and teachers have an obligation to help students understand that.

History

The Delaware Social Studies Standards place a laudable premium on teaching and learning solid historical skills. The problem is that their "skills approach" is completely divorced from content. There is nothing here that might assist teachers in building a "standards-based" curriculum. Although there is mention of assessment, parents cannot track a child's progress (or lack thereof) without specific knowledge of what that child is supposed to be learning. If all content decisions are deferred to the local school, why have state standards? Moreover, if content is deferred to local schools, how is it possible (and fair) to have statewide assessments?

Geography

Delaware receives a C with a score of 64, an increase of 21.8 points since 1998. Standards remain the same but new grade-by-grade performance indicators culminating in "end-of-cluster expectations" for grades K-5, 6-8, and 9-11 put needed teeth into the material. Vague sample activities have been dropped. Glossaries at the end of each grade cluster contribute to coherence.

The standards are still in flux. The state continues a process that

will increase the number of performance indicators as well as enhance specificity, leading to development of social-studies assessment instruments.

In the current version, elementary material is particularly improved. Fundamentals receive serious focus. Challenging material regarding grid systems and mental mapping is presented in third grade. Middle school scores less well, however. No area receives a high score. While there is added specificity, performance indicators are not strong and tend to be repetitive across the grades.

Performance Indicators for eleventh graders score better but are too broad. Despite the challenging thinking reflected at this level, the indicators are too few, too overarching, and contain no benchmarks to be truly useful. The high school draft does provide two "sample models" indicating when standards should be addressed within courses given in grades 9-11, a nice addition to this material.

Math

The authors of the two versions of the high school standards, called Model 1 and Model 2, one of them "integrated" and the other presented by course name, are apparently quite different from those who wrote the K-5 and 6-8 documents, and our grades are an average that obscures some great differences among the three levels. There are separate Glossaries for each of the three, all unnecessary, but the one for the high school level is embarrassingly awkward as well as often technically mistaken, while the other two are good. The clarity of writing in K-5 and 6-8 is also superior to that in the 9-12, though the content in 6-8 is disappointing after a solid beginning in the earlier levels, especially as to mathematical reasoning, where the K-5 standards imply a curriculum preparing students for more than the "marking time" that seems to afflict so many middle-school programs, this one included. After that, the high school standards make but little recovery of lost ground, and almost the only "inflation" in the ensemble is found at that level. The documents taken together, however, are a distinct improvement on what Delaware offered in 1997, even though the state's (improved) point score remains in the C range.

Science

Delaware's Science Performance Indicators come in three parts. The first two parts cover grades K-5 (February 1998) and 6-8 (May 1998). They supersede the documents reviewed in 1998 through grade 8. The grades 9-11 materials are contained in a separate publication, comprising a 14-page Science Curriculum Framework: Content Standards and a 28-page set of Performance Indicators. No standards are specified for grade 12.

The K-8 Performance Indicators are very detailed, totaling 83 dense pages (not counting repetitions). Fortunately, the organization is good, making perusal of the documents less daunting than one might expect. In particular, for each of the eight overall standards there is a list of end-of-cluster expectations, which summarize what the student ought to have learned by that time. These expectations sometimes serve as a welcome means of unifying the "laundry lists" of the preceding grades. It is stated that these expectations will serve as the basis for statewide assessment, a hopeful sign that the exams, when developed, will emphasize large concepts as well as minuscule items.

Some items appear repeatedly. For instance, Standard 4.315, which concerns the study of human impact on water engineering in Delaware, appears under Nature and Application of Science and Technology, Earth's Dynamic Systems, and Ecology. This can be a useful tool for exposition of interdisciplinary issues. Or it can make for needless classroom repetition.

Inevitably, there are some errors. One of the most obvious stems directly from the commonplace failure to define energy adequately before using the concept.

It would be nice if the K-8 standards placed more emphasis on the importance of calculation and of oral and written presentation of results. Though there is considerable discussion of measurement and some of data analysis, these processes are of little use if their outputs are not communicated.

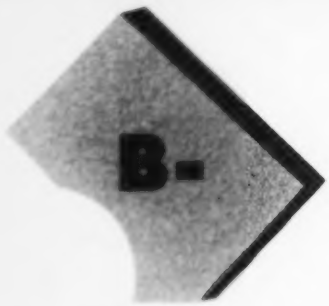
The grade 9-11 standards are presented in a complete and orderly way. They properly stress the use of mathematics. The methodology and structure of science are set forth with particular clarity, and the connections among the sciences are made clear. The evolution of the Earth and its biosphere are handled thoroughly and well but the history of the universe as a whole is shortchanged.

There are a few infelicities. Standard 3.41 speaks of "energy waves," but all traveling waves carry energy and there is no such thing as a generic energy wave. Stars do not "appear to go through [life] cycles," as Standard 4.11 would have it; they actually go through life cycles that are widely

observed and pretty thoroughly understood.

In summary, however, the Delaware Science Performance Indicators are clear, well organized, and demanding but reasonable in their expectations of students. In their emphasis on the essential theoretical structure of the sciences, they rank among the very best among the states. The error rate is low. Students whose science education is guided by these documents will acquire a strong grasp of the meaning and structure of the sciences as well as their content.

District Of Columbia



Report Card	1998	2000
English	-	A
History	C	F
Geography	C	A
Math	D	B
Science	-	-
Cum. GPA	1.67	2.75
Overall Grade	C-	B-

English

Overall, the 1999 standards document for the District of Columbia is one of the better ones in the country. Its standards are clear, specific, and measurable; it is thorough in its coverage of almost every area in the English language arts and reading; it provides lists of high-quality books or other readings for each grade level; it spells out the study of American and British literature; it expects use of Standard English orally as well as in writing; it expects systematic teaching of phonics; its standards show regular increases in complexity over the grades; and it is generally free of anti-literary and anti-intellectual expectations or requirements. It is a completely different document from an earlier draft of several years ago. The writer(s) deserve kudos. If the D.C. schools can develop good assessments based on these standards, the District should be able to drive instruction upward so long as help is provided for those students who need it.

History

As impressive as this thick volume of social-studies standards may appear, the truth is that the children of Washington, D.C., will only wonder at the innumerable monuments of American history that surround them rather than understand the many faces and words etched upon them. These standards only mimic history. The document is more than two inches thick, but the size is deceptive. Each "grade" consists of some 38 pages, yet many of the same materials are repeated for every grade. The repetitive format is confusing and wasteful. Teachers and parents will be hard-pressed to make sense of this document, let alone discover exactly what is to be taught and learned in any particular grade. There is also a significant amount of special-interest meddling and group hyper-consciousness. It's a pity that the D.C. standards writers have directed children away from learning the basics of American history to capitalize on what some factions claim are student needs.

Geography

D.C. receives an A with a score of 81, an increase of 19.5 points since 1998's review. The fact that required geography courses are taught in grades 4, 6, 7, and 9 is reflected in the thoroughness of the standards material.

Most geography lies within the social-studies topic "Social Diversity and Social Change." Geography is also arranged in a subject-specific, grade-by-grade scope and sequence by content area based upon the National Geography Standards. In addition, we see categories covering performance standards, essential skills, and technology integration. Benchmarks are presented for grades 3, 5, 8, and 11 under each geography content area. Finally, proficiency levels are presented for pre-K to grade 3 and for grades 4-5, 6-8, and 9-12. These provide general descriptions based on commercial assessments.

Within this multi-layered superstructure, one finds K-4 content, skills, and applications that score well. Middle grades receive highest scores in all areas except applications. And the high school stan-

dards (grade 9's mandated world geography course) score acceptably in fundamentals and places and regions, and high in all other areas.

Math

There is no resemblance between this very large *Standards for Teaching and Learning* and its predecessor reviewed for Fordham I. It is large and well organized, with sections for each grade level repeating enough of the overall standards so that a teacher in possession of the part still has some apprehension of the whole. The philosophy of the document is avowedly in accordance with that of the National Council of Teachers of Mathematics 1989 standards, though with some exceptions the outlined program is sound. (There are some curiosities, though, such as "ethical behavior," and the teaching of word processing and how to use the World Wide Web at grades K-2. And, under data processing, "measures of central tendency" is a curriculum item repeated for grades 5, 6, 7, 8, and 9.)

Though "deductive reasoning" is mentioned in grade 10,with "Pythagorean thereom" in the near sequel, there remains an almost total inattention to deductive reasoning in general. Nor is it made clear what role calculators are to play in the teaching of fundemental operations of arithmetic. Despite those faults, the program does outline the traditional content, which represents an ambitious goal for the District.

Science

The District of Columbia has not yet completed a draft of its science standards. ■

Florida

Report Card	1998	2000
English	D	B
History	C	C
Geography	C	B
Math	D	D
Science	F	F
Cum. GPA	1.20	1.80
Overall Grade	D+	C-

English

This review covers Florida's 1996 document and was supplemented by a review of revisions made in 1998-99, which added grade-level expectations for each existing K-8 standard and benchmark. The 1996 document has many strengths: it is written in clear prose for the general public, it is organized in coherent strands, and its standards are generally clear, specific, and measurable. Moreover, it tries to offer clear examples for each benchmark. Its expectations for reading and writing increase from level to level, for the most part. The development of a reading vocabulary through attention to word meanings and word study begins in grades 3-5 and continues through 6-8 (although it is not clearly spelled out at higher grade levels), and there are details for Standard English conventions for writing. The grade-level expectations that have been added make the benchmarks much clearer and more specific in all areas.

However, the standards and benchmarks would be strengthened by some cultural and literary specifics, particularly at the high school level, and by removing the injunction that students are to relate the literature they read to their personal lives at ALL educational levels—a serious anti-literary requirement. Florida needs to work out a core of authors, works, literary traditions, and literary periods in its standards that will assure its citizens that its schools can develop educated citizens capable of maintaining this country's civic culture.

History

The *Florida Sunshine Standards and Grade Level Expectations* in history remain either content-free, extremely general, or distant from the capabilities of real teachers and actual students. Most of the standards from pre-K through grade 2 and for the higher grades read like questions from a Ph.D. student's comprehensive exams. For example, the pre-K through grade 2 Standard 3, 1, reads, "[the student] knows the accomplishments of major scientists and inventors (e.g., specific scientists and inventors, what they created, and how their creations have influence society)." Or try this one (also for the pre-K through grade 2 level): "[the student] knows significant individuals in United States history to 1880." And at the grades 9-12 level, "[the student] understands the significant political and economics transformations and significant cultural and scientific events in Europe during the Renaissance." For standards, such items defy assessment. They offer only the most general hints as to what the teacher should teach and the student should learn. Which "major scientists and inventors" should be studied? What does "significant individuals" mean? Does the 9-12 standard example really prepare a 14-year-old to "understand the significant political and economics transformations … during the Renaissance?" If a student did understand such things, how would he demonstrate such knowledge? These standards are well intended but they have much room for improvement.

Geography

Florida receives a B with a score of 72.5, an increase of 7.5 points since 1998. Its standards

would earn an A but for the absence of the physical systems content area (which is taught in science). The pre-K through grade 8 standards have done away with sample performance indicators that emphasized "doing" in favor of specific grade-by-grade expectations that emphasize "knowing" and demonstrating that knowledge. This makes the standards more easily assessable.

These are generally excellent standards. They receive highest scores on General Characteristics. Elementary scores are lower than they might be as so much material concentrates on teaching the fundamentals of geography that there is little emphasis on other content areas. This is made up for in the middle grades where standards scored one point less than perfect because of a lower score in geography applications.

Coverage of the discipline, the rigor of its requirements, and the thoughtful use of geography's spatial perspective including a strong emphasis on mental maps make these standards stand out. (High school sections remain unchanged and reflect 1998's score.)

Math

The summary standards, divided into grades K-2, 3-5, 6-8, and 9-12, and then by strand (e.g., number sense), standard (e.g., "the student understands number systems), and benchmark (e.g., "understands ... place value with whole numbers between 0 and 100") remain the same as reported in Fordham I, but at the K-8 levels there are now *Grade Level Expectations* replacing the earlier *Sample Performance Descriptions*, and incorporating the standards and benchmarks as headings. On the whole, there is not much improvement. "Real-world situations" are celebrated throughout, even when discussing irrational numbers, which have only a Platonic home. The strands and "standards" are repeated verbatim at different grade levels, so that some are forced onto inappropriate levels in the interest of making the document uniform. For example, geometry's Standard 3, calling for "coordinate geometry," appears at the K-2 level as well as at the others, with examples that really should call for a different rubric. The details differ at the different levels, and indeed the "expectations" are too often very low indeed, contradicting the ambitious headings even at the higher grade levels. The 1999 documents do not make clear to us the connection between the general standards at the high school level and the 1997 course descriptions (Algebra I, Trigonometry, Applied Mathematics, etc.), which, since we received no "expectations" for this level, are perhaps still operative in that capacity, though the state did not provide them for the present evaluation.

Science

The 1998 evaluation was based on the 1996 *Florida Curriculum Framework - Science*. This document contains a list of benchmarks together with Sample Performance Descriptions separated into four grade clusters. The benchmarks are unchanged but are now available in several formats. The one considered here, *Grade Level Expectations for the Sunshine State Standards*, lists the benchmarks by grade cluster (pre-K through grade 2, 3-5, and 6-8). Each benchmark is followed by a list of grade-specific grade-level expectations. These explicit grade-by-grade expectations appear to supplant the less grade-specific Sample Performance Descriptions. (A similar list for grades 9-12 is presumably in preparation.)

All of the shortcomings of the benchmarks are still present. And unfortunately, the grade-level expectations are no improvement over their predecessors in terms of clarity and scientific accuracy. As with the earlier document, there are occasional lapses in grade-level appropriateness. Often, an expectation is merely a verbatim copy or close paraphrase of the benchmark it is supposed to illustrate—sometimes over two or more successive grades. Worse, the expectations are sometimes irrelevant to the corresponding benchmarks.

Energy is discussed intelligently in a few places but no attention is given to defining the term, even though such technical terms as *kinetic* and *potential* are used. Modern astronomy, modern geology, and molecular biology are still shortchanged.

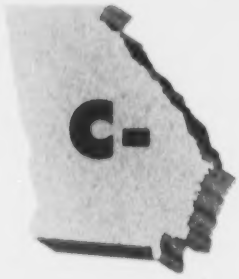
As in the earlier document, evolution is touched on very lightly—certainly not given its proper place as the central organizing principle of the life sciences—and the "E-word" is diligently avoided. The only relevant grade-level expectations that I have found are vague and inaccurate: "[The eighth grader] knows that the fossil record provides evidence that changes in the kinds of plants and animals in the environment have been occurring over time" (for Benchmark SC.F.2.3.4), and, "[The seventh grader] knows that biological adaptations include changes in structures, behavior, or physiology

that enhance reproductive success in a particular environment" (for Benchmark SC.G.1.3.2), of which the grade-level expectations are verbatim repetitions. There are a few references to competition and adaptation at earlier grade levels, but no direct reference is made to the evolutionary implications. Nor, unfortunately, is any information other than the fossil record discussed in an evolutionary context.

Graphs are introduced at first grade (!) but there is a paucity of development of this and other quantitative methods in the higher grades. Both the benchmarks and the grade-level expectations need extensive revision before they can make a useful contribution to the educational process.

■

Georgia



Report Card	1998	2000
English	B	B
History	D	C
Geography	F	D
Math	B	B
Science	D	F
Cum. GPA	1.60	1.80
Overall Grade	C-	C-

English

Written in clear prose, Georgia's 1997 standards document has many strengths. Most of its standards are clear, specific, and measurable. It makes clear its expectation that students are to use Standard English conventions in writing and formal speaking. It is one of the few documents to spell out some general cultural and literary specifics, expecting students in grade 11 to study American literature (commendably described as "representing diverse backgrounds and traditions"), its literary movements, periods, and the major cultural, religious, philosophical, and political influences on it at different periods. It expects grade 12 students to do the same for British literature. It is also one of very few documents to expect students to study the history and nature of the English language.

However, its objectives for vocabulary development in the high school grades are not as clearly detailed as they could be. And it fails to mention key literary titles or authors for American and British literature in its standards to indicate expected civic and cultural knowledge as well as level of reading difficulty. This document would be considerably strengthened by making more specific its expectations for students' reading level at the grade levels assessed, as well as for their knowledge of our literary and civic heritage.

History

The Georgia "Core Curriculum" presents a fully comprehensive social-studies document, divided into individual grades K-8 and clustered 9-12. There is a special (and useful) emphasis on identifying and tracking standards by topic and concept. Some standards are very clear and measurable, others hopelessly vague and unmeasurable. In the early grades, the concept of culture is featured, raising suspicion that the intention of presenting "historical" content is to shape children's attitudes rather than the correct (and justified) introduction of history/chronology through notions of past, time, continuity, and change. There is a strong application of United States history, however, and, in general, this history is complete and doable. Still, world and European history is painfully thin in the upper grades and nonexistent in the lower. Skills, when presented, are separate from content. I found no evidence that these standards work to inform students about the danger of politicizing and promoting history as dogma.

Geography

Georgia receives a D with a score of 58, an increase of 22.5 points since 1998's review. Combining elements of *the Guidelines for Geographic Education* as well as national geography standards, Georgia identifies standards for grades K-8 (except grade 5) and for a high school course. Some standards include skills needed to achieve the standard, discussed under a column called "Notes."

Scores for General Characteristics are high. Problems occur within the areas of comprehensiveness and rigor. Elementary standards are strong in fundamental map skills but decline in other content areas. Standards for middle grades fare slightly better. Fundamentals continue to receive emphasis and regions receive more

attention but physical systems are ignored and environment and society get scant coverage. Human systems fare better but, generally, the standards are thin.

Because of a world-regional course given in high school, geography scores improve but this course does not appear to be very demanding. As this course focuses on regions, places and regions receive strong attention. Yet physical systems are not addressed and material relating to the environment is virtually nonexistent. Skills and applications receive low scores.

Math

The edition of the *Core Curriculum for Mathematics* reviewed here is dated December 1997, and is plainly the finished version of the Draft document (dated the preceding February) which was evaluated in Fordham I. The Georgia State Education Department web site (http://admin.doe.k12.ga.us) has been recording continually revised versions since then, and does not send out printed copies. Except for some reorganization of the optional high school offerings, it does not appear that the current version differs materially from the version we had then, though the organization of the web-site version makes it hard to download and compare line by line. The *Core Curriculum* is very detailed, much more than an outline for a curriculum except that, at the high school level, it is not made clear what the sequence of courses should be, or for whom. There is, as in a college catalogue, a varied menu, so that the high school content suggested for Georgians can be either sophisticated or remedial. No minimal graduation requirement is visible. At levels K-8, plainly intended for all students, the standards are given grade-by-grade. Our evaluation (or perhaps re-evaluation) produces a score slightly improved from that given in Fordham I.

Science

The document reviewed here, *Georgia's Quality Core Curriculum*: Science, dated December 1997, has been so extensively rewritten that comparison with the document of the same title reviewed in 1998 is not useful. The new document describes expectations by grade in grades K-8 and by discipline in grades 9-12. It is a very lengthy, very detailed list of expectations, each associated with a Topic, a Concept, and Notes. The content parts of the curriculum total 69 pages of 9-point type. The document is generally well organized and contains relatively few errors of content and/or relevancy. Laudably, students perform simple experiments as early as the first grade, though some expectations are vague.

There is a certain amount of fashionable jargon where clear language would be better. As is far too common, the term energy is extensively used without adequate definition. The seasons are attributed entirely to the angle at which the sun's rays strike the Earth (i.e., the elevation of the sun). But the length of the day is also important, and high solar angle goes together with long days—a point not mentioned. Gravitational force does not depend on the difference in the masses of two objects (Standard S.5.15.). Alternating-current theory, a difficult subject for high school students, is jumbled (Physics Standard S.9-12.19 and elsewhere). Tachyons are not "fundamental particles of the atom," but leptons, not mentioned, are (Physics Standard S.9-12.22). And not all chordates are vertebrates, as Biology Standard S.9-12.21 implies.

A few items seem inappropriate to the grade level at which they are presented. For example, the fifth grader "[d]escribes the relationship between movement [sic] and forces (e.g., inertia, acceleration, and velocity) quantitatively as a function of change in distance traveled over time" (Standard S.5.13). Is it really intended that a fifth grader is to use and understand a quantitative definition of acceleration and apply it in such expressions as $x = x0 + v0t + \frac{1}{2} at^2$ for a = constant? Speed, work, and power are defined at grade 6 (Standards S.6.9, S.6.12) yet these definitions are needed to carry out tasks expected of pupils in grade 5.

Beginning with grade 5, students are expected to gather and record data, make graphs, tables, sketches, and diagrams, and perform other semi-quantitative and quantitative tasks. However, no reference is ever made to calculation or (at higher grade levels) to algebraic or trigonometric manipulations.

Some good points deserve mention. As early as grade 3, the student "[i]dentifies the cell as an important unit of structure in living things." As early as grade 6 the student is asked to differentiate between heat and temperature, to know something about image formation by lenses and about electromagnetic phenomena. Disease processes, too often relegated to health classes, are introduced formally at grade 7.

Still, the Georgia document is grossly disfigured by its overall mistreatment of all of the sciences

that have essential historical components—astronomy, geology, and biology. It is not merely that the word "evolution" is sedulously hidden from the view of students. The entire subject is shortchanged. All of cosmology is relegated to a single eighth-grade item. Fossils are mentioned in a single grade 3 earth-science item and never in the context of the life sciences. No mention at all is made of any other lines of evidence that illuminate evolutionary processes, such as comparison of DNA and amino-acid sequences. Plate tectonics appears once, at grade 5, and there only by implication. As for biological evolution itself, we have a single catch-all item at grades 9-12 that covers all of cosmology and biological evolution (and "others"), and one-third of that item cottons to pseudoscientific prejudices by stressing the difference between micro- and macro-evolution—a distinction that is scientifically unimportant in this context.

In the main, the Georgia standards are strong on lists. But strength in the facts is futile if paired with hopeless weakness in theory—a problem that gets worse as students mature and become more and more capable of abstraction and synthesis. Shorn of their central theories, no sciences make any sense at all to the scientist—let alone the poor student! In spite of all the hard work the writers have put into it, the Georgia Quality Core Curriculum: Science is an unsatisfactory way of teaching science. ■

Hawaii

Report Card	1998	2000
English	F	F
History	-	F
Geography	-	F
Math	F	C
Science	A	D
Cum. GPA	1.33	.60
Overall Grade	D+	D-

English

This review addresses the August 1999 version of Hawaii's standards, a document that suffers from many serious limitations. Its standards tend to be vague, undemanding, and unmeasurable. There are not enough details to establish successively higher levels of intellectual difficulty, especially in the secondary grades, and the standards are unmeasurable for many reasons: some are moralistic injunctions, some are process standards, others are expressions of personal taste or reflect values, while others express lofty goals (e.g., "reveals insights about people, events, knowledge, and experience"). Some are uninterpretable or undoable by normal students (e.g., "evaluate own interpretation within a range of plausible possibilities"). As a result, many areas of the English language arts and reading are not well covered. There is nothing on the development of vocabulary knowledge, nothing to suggest that systematic instruction in phonics will take place in the primary grades, few details are given for language conventions over the grades, and there are no literary or cultural specifics—suggested authors or titles, or suggested literary periods or traditions, as there was in an earlier version of Hawaii's standards. In addition, the document encourages cultural stereotyping. Hawaii's standards could be considerably improved if those writing it were less focused on encouraging a narrow range of specific pedagogies and more dedicated to setting forth measurable academic standards that are useful to teachers.

History

The *Hawaiian Social Studies Content Standards* claim to "rais[e] our expectations [by] living up to them." The crucial question is, What expectations? These standards do not contain any specific content. A "suggested historical framework" is offered, but none of it is of any use to teachers, parents, or students who might want to know what should be taught and learned.

Geography

Hawaii receives an F with a score of 33. The standards and their accompanying benchmarks are far too broad to indicate specifics of what students should know and be able to do in geography.

The standards are based on the national model, *Geography for Life*, and are written for the K-3, 4-5, 6-8, and 9-12 grade clusters. The five content standards encompass the world in spatial terms, places and regions, physical systems, human systems, and environment and society, like the national model, but ignore the model's "uses of geography" that encompass skills and applications. Hawaii tries to pull those into the content standards as well. All this information is folded into one so-called benchmark per content area per grade cluster; thus K-3 has five benchmarks, grades 4-5, five benchmarks, etc. These benchmarks are enormously broad and consequently not measurable. For example, students in grades 6-8 are asked, within the content area covering human systems, to "analyze how demographic patterns, cultural landscapes, cultural diffu-

sion, economic activities, territoriality, and urbanization affect places."

Students in grades 9-12, within the environment-and-society content area, are asked to "evaluate consequences of human activities on Earth and implement a plan of action for the use and stewardship of local and global resources." What is not clear is what it is that students must learn in order to be able to do this.

Hawaii's content standards resemble broad curriculum models rather than bite-size pieces of specific information that students need to use to prove what they know. The state does say that "performance standards that answer questions like 'What does good performance look like?' and 'How good is good enough?' will be described on a web site" during the coming year. Perhaps the state's educators will then break down the current content standards into measurable chunks. Until that is done, Hawaii's standards are virtually useless for students or parents.

Hawaii's standards also include a geography glossary in which exactly two terms are listed and defined. The terms are: "cultural landscape" and "cultural mosaic." While less may be more in some instances, for Hawaii's geography standards (and the state's students), this is not nearly enough.

Math

We review here the *Mathematics Content Standards* dated August 1999, which are to be followed by *Performance Standards* not yet available to us. The latter will, according to the state, clarify the former, but the intent is fairly clear as it is. The grade levels K-3, 4-5, 6-8, and 9-12 are distinguished, and the benchmarks for each of the five strands are few enough to use up precisely two facing pages, for a 10-page document in all, with some introductory matter and references, and no Glossary. The prose is usually crisp though sometimes vague in referring to specific topics. Almost nothing is redundant, and what is left out sounds deliberately so. A major defect is that almost no mathematical reasoning is called for. As to content, the algorithms of arithmetic are to be "developed" or discovered, explored, and discussed among the students, but positing such pedagogy cannot be fully descriptive of the content results intended, for the document is silent on what algorithms, or memorized learning, are to be the final result in most cases. We must judge, on the basis of the content statements as printed, that the performances demanded will be relatively undemanding, especially in geometry and algebra.

Science

Reviewed here is the August 1999 draft of the Hawaii *Science Content Standards*, subtitled *Moving from the Blue Book to HCPS II*. (*HCPS* stands for "Hawai'i Content and Performance Standards.") It is organized quite differently from those reviewed in 1998. Though it appears to be of medium length (50 pages), it is actually quite brief. It treats grade clusters K-3, 4-5, 6-8, and 9-12. The organization of the material is somewhat unusual, the two major divisions being "Domain I: How Humans Think While Understanding the Natural World," and "Domain II: What We Know Today about the World Around Us." The former includes the methodology of science; the philosophy and values of science; science, technology, and society; and safety. The latter includes the history of science, the usual disciplinary content of science, and (somewhat unusually) a strand devoted to wellness (health) and the social sciences, particularly psychology and sociology.

In the main, the document shows excellent, clear organization. The writers evidently understand the "big picture" of science, the functions of the sciences, and the relations among them. However, there is a distinct paucity of specifics, which is evident in the large amount of white space present in the content pages. For example, the Content Standards give a beautifully clear overview of biological evolution, with a clarification paragraph headed "In other words," and a short paragraph headed "For example". But when it comes to describing what students are expected to know, there are exactly four lines at grades K-3, six at grades 4-5, 10 at grades 6-8, and 10 at grades 9-12. This sketchiness may present no problem to the skilled teacher who is compiling lesson plans, but it surely does not provide much guidance for parents, exam developers, or other people concerned with the standards. (Other subjects (notably Heredity) get even lighter coverage.)

One may also criticize the absence of specifics as to laboratory and field experiences, and as to the use of mathematics and writing in scientific activities. Nevertheless, were a competent committee assigned to flesh out these *Science Content Standards*, the result might well be one of the finest science standards in the nation. ■

Idaho

Report Card	1998	2000
English	F	-
History	-	-
Geography	C	-
Math	F	-
Science	-	-
Cum. GPA	0.67	-
Overall Grade	D-	-

Idaho has rescinded its old "frameworks" and "scope and sequences" and is in the process of writing academic standards. The state has published drafts for grades 9-12; unfortunately we are unable to review partial sets of standards. Therefore, Idaho receives an incomplete for all subjects at this time. ■

Illinois

Report Card	1998	2000
English	B	B
History	F	F
Geography	*D*	*D*
Math	*D*	*D*
Science	*B*	*B*
Cum. GPA	1.60	1.60
Overall Grade	C	C

English

Written clearly and succinctly for the general public, Illinois's July 1997 standards document has many strengths. Its standards are clear, specific, and measurable. Its strands are coherently organized, with subcategories that articulate meaningful increases in academic expectations through the grades. Benchmarks are included for vocabulary development from the middle grades on, and reading, speaking, listening, writing, and research skills are adequately addressed at all educational levels. It also specifies the study of American literature in high school.

Yet the standards contain no cultural or literary specifics beyond the bare mention of American literature at the high school level. There is no explicit expectation for knowledge about the history and nature of the English language. The document would be considerably strengthened by spelling out some cultural and literary specifics in its standards: some key authors, works, literary periods, and literary traditions would make academic expectations clear for students' knowledge of the nature, substance, and history of their literary and civic culture. The next revision should also consider eliminating the implication that literary understanding is necessarily connected to students' daily lives and (limited) personal experiences.

History

The *Illinois Learning Standards for Social Science* attempt to present all of what should be taught and learned in history in six pages. Such economy of historical content should not be construed as pedagogical thrift but rather as an educational travesty. The lack of coherence and other matters of historical soundness are striking. To be sure, these *standards* are peppered with specific names, but none of it will be of any use to teachers, students, and parents who are seeking to determine what every child should know and be able to do in history.

Geography

The state supplied no evidence that its standards have been revised since 1998.

Math

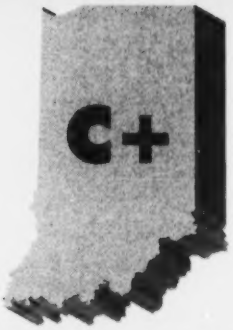
The state supplied no evidence that its standards have been revised since 1998.

Science

The state supplied no evidence that its standards have been revised since 1998.

■

Indiana



Report Card	1998	2000
English	F	F
History	C	C
Geography	A	A
Math	C	C
Science	A	A
Cum. GPA	2.40	2.40
Overall Grade	C+	C+

English

The document reviewed here is a first draft of the revision of its 1992 document. It has a few strengths: students are now expected to use Standard English in writing and in formal presentations, and it seems as if they will be taught to use decoding skills for "common words" in grade 1 and "less common words" in grade 2. Further, there is a "word recognition" strand, although it never becomes a real vocabulary strand. And the draft does provide titles of literary works as examples for each grade level.

Unfortunately, this draft still exhibits almost all the other limitations of the 1992 document, and those were voluminous. Most standards in this draft are unmeasurable, chiefly because the document is still excessively process- and strategy-oriented. There is no point in producing a standards document if most of it cannot be used by Indiana's schools. The eight strands do not reflect coherent bodies of scholarship or research, and a strand on the research processes is missing. Higher and lower skills are not sorted out in the many items placed in each "standard" itself. Informational reading, writing, and literary study is poorly addressed; this draft contains no literary and cultural specifics at all, not even a requirement that students are to study American literature. The best strand in this document, ironically, is the conventions strand because its objectives are measurable and teachable, and show increasing complexity. Otherwise, there are few progressions in intellectual complexity over the grades, and the academic demands of the reading, literary, and writing standards at the high school level are generally pitiful. Surely, Indiana has more demanding high school English teachers than is reflected in this document.

Indiana needs to develop academically oriented standards that are specific, measurable, and demanding. The document needs to move beyond a writing-and-reading process approach to a learning approach, and it must reduce drastically or eliminate standards that focus on processes, values, and attitudes. It also needs to spell out some cultural and literary specifics in its standards, such as some key authors and works, or literary periods and literary traditions, to make clear its expectations for students' reading levels at different educational levels as well as for their knowledge of this country's literary heritage if we are to maintain our civic culture and transmit it to a new generation of young people.

History

The state supplied no evidence that its standards have been revised since 1998.

Geography

The state supplied no evidence that its standards have been revised since 1998.

Math

Content Standards achieves its relatively high score largely on the basis of its style, the clarity of its prose, and its lack of jargon. However, it does include "Process Standards," of which, for example, Connections (at grade 8) asks: "Use geometric ideas, such as similarity, to describe things in nature, art, construction, and other areas.

Example: Compare your school building with a plan of the building. Look for your classroom on the plan and see how it is the same as the real classroom" (Standard 5: Geometry). Nothing could be clearer, to be sure, but it is more of a diversion of time than a lesson in mathematics.

At grade 7, under Measurement, students must show they can measure the side of a regular hexagon, surely a primitive skill for grade 7, and then the perimeter. Finally, the area is asked for. By measurement? (No Pythagorean theorem or trigonometry has been introduced yet.)

On the whole, the content is thin, with even the curriculum for Algebra II insufficient for the calculus course to follow, and the entire document is much concerned with real-life and hardly at all with reason.

Science

The K-8 document reviewed in 1998 has not been changed. Two sections have been added to the *Indiana High School Competencies* document reviewed there, covering two sequences: Integrated Chemistry/Physics (9-12) and Environmental Science, Advanced (10-12). While these additions are relatively minor, the former indicates at least a sanctioning of movement toward the integrated approach common in Europe and Japan but uncommon in the United States. The quality of the additions is consistent with the generally fine quality of the rest of the document.

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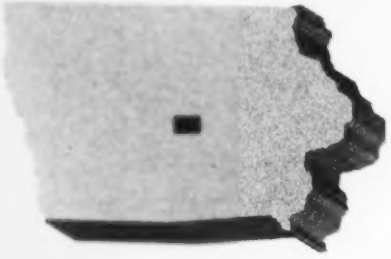
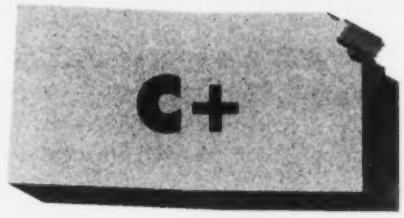
Iowa



Report Card	1998	2000
English	-	-
History	-	-
Geography	-	-
Math	-	-
Science	-	-
Cum. GPA	-	-
Overall Grade	-	-

As a matter of policy, Iowa has not adopted state standards. ■

Kansas



Report Card	1998	2000
English	F	F
History	F	B
Geography	D	A
Math	D	A
Science	C	F
Cum. GPA	0.80	2.20
Overall Grade	D-	C+

English

This review addresses a 1998 revision of Kansas's 1996 document, which was very weak. The 1998 document contains standards only for reading, literature, and writing. Further, many standards are to be assessed only locally, and those that are left for state assessments do not constitute a full appraisal of reading and writing objectives, while those that are to be assessed locally tend to be unmeasurable. Yet the 1998 document is an improvement in that reading is covered well, the vocabulary benchmark is good, and the writing indicators are adequate. Many troubling limitations remain, however. In general, the standards do not increase in intellectual difficulty over the grades, and what is found at the grade 8 or 11 levels is not enough to expect of Kansas students. Literary study is not handled well, with no literary and cultural specifics at all, not even a mention of American literature, and there are few details for language conventions over the grades. Kansas must have better high school English teachers than is reflected in this document. Moreover, it is still not clear if there will be systematic phonics instruction. This 1998 document is a start in revising a woefully inadequate predecessor, but it needs much more work.

History

The Kansas history standards are clear, doable, content-rich, and rigorous. The general approach to historical studies is solid. Teachers, students, and parents should be able to obtain a good understanding of what is expected. Additionally, assessment preparation should pose no problem for state and local officials. Despite the lack of grade-by-grade guides (which affects the standards' overall score), Kansas has vaulted to one of the top spots in the nation with these fine history standards. Greater attention to connecting content with skills would help teachers and students even more, especially when dealing with political and social dogmas and when working to avoid manipulating children's feelings and attitudes.

Geography

Kansas receives an A with a score of 80, an increase of 24 points since 1998's review. These straightforward draft standards, refreshingly unambiguous, bring in geography's spatial perspective throughout their extensive coverage of challenging material. All content areas are well covered throughout and skills and applications receive good attention. Even the use of mental maps is included by the end of grade 8.

The standards, tightly honed and narrowly focused, are laid out for grades 2, 4, 6, 8, and 11. They are specific, using strong verbs that incorporate measurability. All aspects of the standards are clearly defined and explained. "Standards" are admirably distinguished from "benchmarks" and from "indicators." Moreover, the indicators are all marked so that the reader knows if they are to be assessed by the state or locally. And they are detailed enough to be helpful to both teachers and parents.

Note: Not all Indicators appear in the draft we reviewed. Some of the "e.g.'s" appear in an appendix

not included in the material sent for analysis.

Math

Curricular Standards (March 1999) is an enormous improvement on its predecessor. It is very well organized, though the "application indicators" that accompany the content demands ("base indicators") are too often vague or repetitious. Still, they don't deny the content implied by the base indicators. The document is explicit about which skills are to be tested in statewide examinations (and whether with or without calculators), and is not afraid to ask for knowledge, rather than "exploration,"' where knowledge is the question. Not that exploration or any other mode of thinking or teaching is forbidden. (Alas, the enthusiasm for calculators does appear excessive.) Genuine algebra and at least some deductive Euclidean geometry are introduced early and well, and the analytic geometry demands substantial algebraic skill and understanding. The progression of skill and understanding in all threads is made very clear by the manner in which year-by-year cumulative surveys are organized and printed. The *Standards* end with the tenth grade, apparently implying a school-leaving level examination for all students. Even for tenth grade, however, the content could be a bit richer, and it probably would also be wise for the state to write some guidelines for grades 11 and 12 as well.

Science

The Kansas standards have been much in the news of late, and with good reason. A very detailed *Kansas Science Education Standards, Fifth Working Draft* (June 1999) was the fruit of a year's labor by a committee of highly qualified scientists, teachers from both public and Catholic schools, and expert consultants. The resulting document, about 100 pages long, would have attained one of the highest ratings among the state standards reviewed here. Its special strength lay in the way it tied together individual standards with brief but clear explications of the underlying theory and methodology.

As is now widely known, however, the State Board of Education gutted the document, removing almost every reference to the theoretical backbones of the sciences having historical content—astronomy, geology, and biology—and replacing some of the material with nonsense of a pseudoscientific bent. There is little point in going into detail as to how this was done; a single example will suffice. In the following passage from Standard 5, Benchmark 5, Eighth Grade, original material removed by the Board is in ~~strike-out type~~ and their additions in *italics*:

> Millions of species of animals, plants, and microorganisms are alive today. Animals and plants vary in body plans and internal structures. ~~Biological evolution, gradual changes of characteristics of organisms over many generations.~~ *Over time, genetic variation acted upon by natural selection* has brought variations in populations. ~~Therefore, a~~ *A* structural characteristic or behavior that helps an organism to survive *and reproduce* in its environment is called an adaptation. When the environment changes and the adaptive characteristics are insufficient, the species becomes extinct.
>
> As students investigate different types of organisms, teachers guide them toward thinking about similarities and differences. ~~Students can compare similarities between organisms in different parts of the world, such as tigers in Asia and mountain lions in North America.~~ Instruction needs to be designed to uncover and prevent misconceptions about natural selection. ~~Students tend to think of all individuals in a population responding to change quickly rather than over a long period of time.~~ *Natural selection can maintain or deplete genetic variation but does not add new information to the genetic code.* Using examples *of microevolution,* such as Darwin's finches or the peppered moths of Manchester helps develop understanding of natural selection over time. ~~(Resource: *The Beak of the Finch* by Jonathon Weiner). Providing students with~~ *Examining* fossil evidence ~~and allowing them time to construct their own explanations is important in developing middle level students'~~ *assists the student's* understanding of extinction as a natural process that has affected Earth's species ~~over time~~.

There is much more of this ignorant mischief. Worse, it is not limited to biological evolution, as is almost universally true in other state standards of this genre. Rather, as noted above, there is a sweeping excision of all references to evolution in the universe as a whole, in the solar system, and on Earth. By means of these cuts, the Kansas State Board of Education has reduced biology to natural history, geology to rock

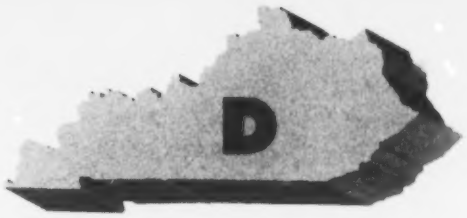
collecting, and astronomy to stargazing.

The direct damage affects two-thirds of the standard physical science-life science-Earth/space science curriculum. But the damage extends to the non-historical sciences in a more subtle way. Teaching students that most sciences lack a theoretical backbone denigrates the significance of theory in physics and chemistry as well.

The *Kansas State Education Standards* in science are a disservice and an insult to the young people of Kansas. Dorothy went from Kansas to Oz seeking wonders and there found empty pseudoscience. She had the good sense to return to Kansas. Sadly, the State Board of Education seems to wish to issue a one-way ticket to all the state's children.

■

Kentucky



Report Card	1998	2000
English	-	F
History	F	D
Geography	F	F
Math	D	B
Science	F	D
Cum. GPA	0.25	1.00
Overall Grade	F	D

English

This review addresses the 1998 "Grades Primary to 12," and Proposed Revisions to the Core Content for Reading and Writing Assessments, probably issued in 1999. The 1998 document has many limitations, undoubtedly the cause for the Proposed Revisions, which is a far better set of documents. Although the 1998 document has a well-done inquiry (or research) strand, it muddles literary study with reading skills, has minimally adequate reading standards through grade 8 and very inadequate ones in the high school grades, covers literary study poorly, has barely adequate standards in writing through grade 8 and inadequate ones in 9-12, shows little increase in intellectual complexity through the grades, is unclear about whether systematic instruction in phonics will occur in the primary grades, and contains many nebulous standards (e.g., "select and read materials for enjoyment").

On the other hand, the Proposed Revisions nicely separate literary study from informational reading, persuasive reading, reading skills, and workplace/practical reading, and show increasingly demanding reading skills for grades 4, 7, and 10. They also have better literature standards, much better writing standards, and very specific and measurable standards that show increasing intellectual complexity in all areas through the three grades to be assessed.

Kentucky's standards could be considerably strengthened by incorporating some literary and cultural specifics such as key authors or titles, or key literary periods or traditions, to assure parents and other citizens of what the state's academic expectations are. Incredibly, neither document specifies study of American literature, not even the many fine authors who hail from Kentucky itself. Future revisions should also eliminate the present anti-literary emphasis on having students relate what they read to their lived experiences or read literature addressing contemporary social issues.

History

The Kentucky history standards are distributed across three documents. The "Transformation" document tells readers that "there is no 'right' curriculum design for social studies. Teachers, schools, and district personnel must begin by making decisions about what is best for all their students." If this is true, then statewide standards for all teachers and students are not possible. Nor are state assessments likely to be fair. To its credit, the next sentence says, "[E]ducators must design curriculum which helps develop the informed, participating citizens required in a democracy." This statement outlines a justified rationale for citizenship education and specific standards that can be applied to every student. But the standards that follow don't do that.

Geography

Kentucky receives an F with a score of 40, an increase of 14 points since 1998's review. The somewhat revised Core Content material is still weak, containing a series of statements that let teachers know at what grade level material should be learned. The Transformations material remains unchanged while the Program of Studies document has been

revised, but again remains generally weak.

The state scores poorly in several categories. And it's disturbing to find that geography's fundamentals receive so little emphasis in elementary or middle grades. Elementary grades score poorly in all areas except content regarding the environment. Middle grades score higher with places and regions, human systems, and environment and society scoring relatively well. High school material receives adequate scores in most content and skills areas because of a new world geography course.

Note: The Core Content document states that "physical geography is also assessed in the science section of CATS," but the present reviewers found no information on physical systems within the science documents sent for examination.

Math

The *Program of Studies* for mathematics is dated 1998 and is a great improvement over its predecessor, the *Learning Goals* of 1994. A second document, *Transformations*, is apparently intended to unify the school curriculum by showing how various threads, such as numbers and measurement, can be applied "across the curriculum." These activities do not run very deep, and are sometimes prescriptions for time-wasting projects. As a whole, they do not contain enough additional information to affect our evaluation of the primary document, which is one of the better ones. Its organization is crisp and clear (save for sometimes vague references) and it makes better than average demands for content, especially at the middle-school level, which traditionally has been the most vacuous part of the American "inch-deep, mile-wide" curriculum. Unfortunately, it still does not pay sufficient attention to the integration of mathematical (deductive) reasoning into the threads of the subject matter. Grade 8, "Discover and apply the Pythagorean Theorem," is not followed by proof, even in the high school geometry outline.

Science

Since 1998, Kentucky has generated new documents for science education. The document considered principally here is the *Core Content for Science Assessment*, version 3.0, dated August 1999. Related documents also perused are *Program of Studies for Kentucky Schools, Grades Primary-12* (1998), *Kentucky's Learning Goals and Academic Expectations* (1994), and *Transformations: Kentucky's Curriculum Framework: Science* (1993). The latter documents provide a structural basis for the first, which is a typical list of expectations. Although the *Core Content* document mainly sets those expectations forth in typical "laundry-list" format, it is well organized with respect to both subject matter and grade-level appropriateness and readily accessible to interested persons.

Because Kentucky has determined to test students at the ends of Grades 4, 7, and 11, the somewhat idiosyncratic division into levels elementary (pre-K through grade 4), middle (5-7), and high school (8-11) is used.

Core Content excels in its coverage of most modern topics, though biology is a notable and regrettable exception. It deals at length with some of the major topics of modern astronomy and cosmology, though with significant omissions. Stellar evolution in particular is well presented, as is plate tectonics (though the term is never used). Biological evolution, to the extent that it is not damaged by euphemism and crucial omission, is well integrated into the study of the life sciences (though human evolution is ignored), and the grand historical pageant that links cosmology with solar-system evolution and then with geological and biological evolution is reasonably well presented. The tight relationships among biological processes at various levels (e.g., molecules, cells, tissues, organs, organisms, populations) are well presented.

The structure of science and the relationship between science and technology are also well presented. There are almost no errors and only a few ambiguous statements of scientific principles, none of them serious enough to engender difficulties.

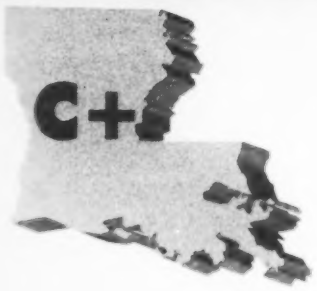
There is ample room for improvement, however. Expectations of written student presentations are limited. Aside from some mention of graphing, there is almost no quantitative discussion, or expectation that more advanced students should master a body of calculations and algebraic manipulations. No physical quantities are defined quantitatively. Fundamental laws (Kepler's laws, Newton's laws, the basic conservation laws of chemistry, Mendel's laws) are hardly mentioned. More explicit mention of laboratory work and fieldwork is much to be desired. Parasitism and disease processes, which (aside from their great practical importance) illustrate a number of important biological principles, are not mentioned at all, and genetic engineering is not given its due. As men-

tioned above, human evolution is ignored except by implication in two standards.

In September 1999, after we had reviewed *Core Content*, the Kentucky Department of Education made the decision to avoid the term "evolution" altogether. Whenever one expects to find the word, one sees instead the euphemism "change over time," or else the word disappears completely. Sometimes the result is just silly. More damaging changes are typified by Standard SC-H-3.2.3: "The broad patterns of behavior exhibited by organisms have evolved through natural selection to ensure reproductive success. Organisms often live in unpredictable environments, so their behavioral responses must be flexible enough to deal with uncertainty and change. Behaviors often have an adaptive logic when viewed in terms of evolutionary principles." This has been distorted to read, "The broad patterns of behavior exhibited by organisms have changed over time through natural selection to ensure reproductive success. Organisms often live in unpredictable environments, so their behavioral responses must be flexible enough to deal with uncertainty and change. Behaviors often have an adaptive logic." What kind of logic? It is evolutionary theory that provides the logical explanation for what we observe in nature. The explanatory power of evolutionary theory is here struck from the view of the student, to his or her serious detriment.

The Kentucky document remains an improvement over its predecessor, but today suffers severely from the triumph of politics over science. ■

Louisiana



Report Card	1998	2000
English	-	B
History	C	C
Geography	C	A
Math	F	F
Science	B	C
Cum. GPA	1.75	2.20
Overall Grade	C-	C+

English

This review covers Louisiana's May 1997 document, the *Teachers' Guide to Statewide Assessment, Grades 4, 8, and 10* (1997), *and Released Test Items, Grades 4 and 8* (1999). Overall, Louisiana's standards, although brief, have many strengths. Except for a strand on problem solving and reasoning, they are organized in reasonable categories. For the most part, they are clear, specific, measurable, and comprehensive. The standards themselves address reading, research processes, and literary study adequately; in fact, they specify American, British, and other literature for study in 9-12. Although they cover writing and language conventions very briefly, the assessment materials spell out the details in these areas.

Yet some limitations should be addressed in future revisions. Few details are given for vocabulary development. Nor are there any other literary or cultural specifics, such as key titles or authors, or literary periods or traditions. And the standards are fairly similar across grade levels, showing little increase in complexity. Much will depend on the appropriateness for each grade level of the difficulty of the passages selected for statewide assessments. Louisiana's standards would be considerably strengthened by specifying in the standards some literary and other reading specifics geared to particular reading levels and by working out increases in complexity in the standards in all strands; otherwise, it is not clear how these standards can lead to a common core of high academic expectations and maintain the basis for our civic culture in a new generation of young people.

History

Without the *Teachers' Guide to Statewide Assessment*, these standards would be barely adequate. The enhanced scores reflect the quality information made available to teachers and assessment specialists in the useful and thorough secondary document. With it in hand, however, one wishes the state had combined its two documents so that students and parents could receive the same benefits that teachers and assessment specialists now have. The combination is what good standards should look like. Such a merger would raise scores considerably. Still, no clues are provided to ensure that social and political dogma will not be tolerated.

Geography

Louisiana receives an A with a score of 83, an increase of 15.5 points since 1998's review. The assessment document requires students to prove their knowledge and skills through in-depth testing at grades 4, 8, and 11. The state's one geography standard uses the content areas from the National Geography Standards, combining Physical Systems and Human Systems into a single category. Skills and applications are found within the content areas themselves.

Expectations appear in benchmarks that are nicely specific. Descriptions of test questions add excellent detail. Tests at all three grade levels consist of 60 multiple-choice questions and four open-ended questions. In fourth grade, about 35% of the multiple-choice questions pertain to geography. Eighth graders receive 15 multi-

ple-choice questions regarding geography, giving it a weight of about 25%. Emphasis is placed on physical and human systems and there is considerable stress on geography's physical processes. .

By grade 11, geography is assigned only 15% of the multiple-choice questions. Nevertheless, high school students may be asked to fulfill tough, open-ended geography assignments. The assessment document is remarkably accessible despite its technical nature. Sample questions utilize numerous stimuli.

Math

The 1997 Louisiana *Mathematics Framework*, judged harshly in Fordham I, is still operative. However, we now have received in addition the *Teachers' Guide to Statewide Assessment-Mathematics*, for grades 4, 8, and 10, as well as two packages of "Released Test Items" showing student responses to a sampling of recent fourth- and eighth-grade statewide test questions. Taken together, these documents provide a somewhat clearer picture of Louisiana's expectations than does the Framework proper. In particular, the *Teachers Guide* incorporates the texts of benchmarks from the Framework, each followed by a list of student accomplishments that the benchmark was intended to imply. The gain in clarity is made evident by the improved scores in that category, and this additional clarity now permits a better estimate of the content expected in the primary- and middle-school programs, which have also been reconsidered. Still, the negative qualities of the original document remain in place and are often reconfirmed by the new information. In particular, the content demanded by the test items is very little, and many topics that might have been (optimistically) inferred from the rather vague benchmarks are now more clearly seen to be excluded from the testing syllabus.

Science

The *Louisiana Science Framework* dated May 1997 and evaluated in 1998 is still in use. However, it has since been supplemented with a *Teachers' Guide to Statewide Assessment, Grades 4, 8, 11: Science*. As this guide contains considerable detail as to expectations for students, we considered it as well. Most germane to the *Framework* are the sample examination questions that exemplify the state's learning objectives. Unfortunately, far too many of these are either scientifically incorrect, ambiguous, or misleading. I counted eight such out of approximately two dozen in the document. These errors and ambiguities undermine the overall quality of the standards in a significant way. They should be rewritten by people who possess deep scientific knowledge and a talent for clarity.

■

Maine

Report Card	1998	2000
English	-	B
History	*D*	*D*
Geography	*F*	*F*
Math	F	D
Science	D	D
Cum. GPA	0.50	1.20
Overall Grade	D-	D+

English

This review is based on the May 1997 document. This is a document with many strengths. It has a reasonable organizational scheme and, for the most part, addresses all the areas of the English language arts and reading satisfactorily. Most of its standards are clear, specific, and measurable. Further, all students are expected to use Standard English orally and in writing, and the standards contains no explicit anti-literary requirements or expectations.

However, this document could be strengthened in a number of ways. It could do so by making clearer expectations for systematic phonics instruction, by organizing the lists of objectives for each grade cluster in informative subcategories, by setting forth explicit objectives on vocabulary development over the grades, by making better intellectual progressions over the grades, and above all by providing literary and cultural specifics, especially in the secondary grades. Without sample reading passages, suggested or required reading levels, or suggested or required titles or authors, Maine's standards are unlikely to create common and high academic expectations in the state.

History

The state supplied no evidence that its standards have been revised since 1998.

Geography

The state supplied no evidence that its standards have been revised since 1998.

Math

Maine's *Learning Results* (Mathematics) of July 1997 is well organized, but its 11 categories are applied to each and every grade level, no matter how inappropriately. Thus we find "algebra" at grades K-2, for example, in pursuit of some pedagogical theory that does not really contribute to the purpose of standards. One consequence is vagueness throughout: "Explore the use of variables and open sentences to describe relationships" and "[r]epresent and describe both geometric and numeric relationships" are found on page 47 for the pre-K through grade 2 level. "Identify patterns in the world and express these patterns with rules" describes all of physics, but is here prescribed for middle schoolers. On the other hand, the words "theorem" and "proof" are nowhere to be found, nor are any real examples of their use. Must the students know long division? The multiplication tables? When? Shall they prove the quadratic formula, or is it to be given to them? Not knowing whether such things are to be taught renders problematic how far a teacher or textbook will get in satisfying, say, "Explain what complex numbers (real and imaginary) mean...." What they *mean*? It is better to know what they *are*, and what can be *done* with them.

Science

The Maine Science and Technology standards have been rewritten. The changes, though extensive, are mainly minor in effect, so that at bottom the current document is not very different from that reviewed in 1998. The changes have had a mixed effect. In many cases, items have been

clarified or made more succinct. Vague terms such as "understand" or "recognize" have been replaced with more concrete ones such as "illustrate," "explain," or "describe." On the other hand, the short "essays" that followed the major content standards have been shortened, sometimes with a loss of the clarity they lent to the organization of the lists that followed them. A few items have been moved to higher grade levels, presumably on the basis of experience. The grade-level clusters themselves have been made more explicit; instead of the perhaps ambiguous terms "Primary," "Intermediate," "Middle," and "Secondary," the grade designations pre-K through grade 2, 3-4, 5-8, and Secondary Grades are now used.

A few important items have been inexplicably dropped from the revision. Among them are understanding how fossils are formed (Intermediate); classifying minerals on the basis of their physical and chemical properties, their composition, and their crystal structure (Intermediate); and explaining how scientific evidence from organic molecules (especially DNA), cells, fossils, comparative anatomy, and comparative embryology supports the idea that all forms of modern life have arisen from common ancestors (Secondary).

At the same time, four new major standards have been introduced: Inquiry and Problem Solving, Scientific Reasoning, Communication, and Implications of Science and Technology. These are not intended to be taught as separate subjects but integrated into subject-matter instruction. This is to the good. Unfortunately, the first three never get around to explicitly requiring the use of calculation, mathematical reasoning, or writing, which are essential to every phase of scientific activity.

When all is said and done, the revisions, as extensive as they are, have not resulted in substantial change in the quality of the standards document. ■

Maryland

Report Card	1998	2000
English	-	B
History	F	B
Geography	F	B
Math	F	C
Science	-	D
Cum. GPA	0.00	2.40
Overall Grade	F	C+

English

This review is based on the July 1999 standards document and the High School Core Learning Goals dated September 1996. Overall, the 1999 document contains a strong set of standards. This document expects systematic phonics instruction, addresses all areas of the English language arts and reading satisfactorily, provides a strong set of objectives on vocabulary development through the grades, has a sound organizational scheme, and contains, for the most part, clear, specific, and measurable standards of increasing intellectual difficulty.

However, the literature standards in the 1999 document could be strengthened in several ways. They could be improved by a careful examination of the appropriateness of their demands on the average student's historical and cultural knowledge, especially in the early grades, by avoiding misuse of the concepts of "culture" and "representativeness," and by refraining from implying that literary works as a matter of course should engage readers in social issues or events. Above all, these standards should contain some literary and cultural specifics that in some way suggest the level of reading difficulty expected, particularly in high school. There are very good literary specifics in the 1996 document, but this document does not show the exact level of difficulty expected in high school. Although the 1996 document helps address what is missing in the 1999 standards document, it does not do so completely.

History

The *Maryland Social Studies Standards* is a serviceable document that teachers, students, and assessment experts should find very helpful. The history content is largely solid and doable despite not being presented grade by grade–a problem if the standards are going to be used to hold every teacher and child accountable each year. The history content is not overly detailed. On the other hand, the skill requirements are repetitive and not directly connected to content, and there are significant gaps in the European/world history sections of the document.

Geography

Maryland receives a B with a score of 70, an increase of 43 points since 1998. The completely revised geography strand is challenging and lively. It should thoroughly engage students, teachers, and parents. Standards are based primarily on the national model, *Geography for Life*, and are written for grades 3, 5, 8, and 12. The draft states that material regarding physical systems is found in the state's science standards (but that presentation lacks geographic perspective).

General characteristics receive high marks. While standards do not have measurable benchmarks, per se, most provide a clear indication of what is demanded of students. Standards score well in comprehensiveness and rigor. Pre-K through grade 5 standards excel in fundamentals and in developing skills of geographic analysis. Coverage of the physical and human characteristics of places, human systems, and the environment, as well as applications of the geographic perspective score well enough. Mental-mapping skills are not addressed.

Standards for eighth graders score one point lower overall than for earlier grades. Emphasis is placed on human systems. Students are asked to think analytically throughout. Standards for grade 12 continue to emphasize human systems. There is more attention to environment and society. And geographic applications are thoroughly covered. An excellent social-science glossary with a good range of geographic terms is included.

Math

As the score indicates, the *Content Standards* mostly fail to indicate throughout the content strands where mathematical reasoning is to be taught, emphasized, or used. To say that children should "follow and judge the validity of arguments by applying inductive and deductive thinking" is too general; the standards should have reference to this principle in the earlier details of skills demanded. For example, Standard 6.12.3a asks students to "solve linear and quadratic equations." The headline of that page prefaces this demand with "Students will … solve mathematical … problems involving patterns and functional relationships, while selecting and using tools and technology as appropriate." The wording of all this permits a calculator to be the "tool" by which the quadratic equation may be solved. What about its derivation and logical standing? The same could be asked about the Pythagorean theorem mentioned in 2.8.2b (page 4) under Geometry, and the rather vague 2.12.5, "apply properties and relationships from Euclidean geometry to problem situations." Other features of the document are similar to what most states produce, except that Maryland scored well on the negative qualities, offering no important examples of "inflation" (pretentious jargon, etc.). On the other hand, the glossary is a terrible piece of badly stated mathematical prose, unnecessary besides.

Science

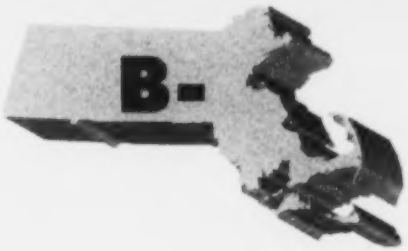
The *Maryland Science Content Standards* (7/99) cover Grades K-12, grouped in clusters K-3, 4-5, 6-8, and 9-12. Grades 9-12 are also the subject of a separate document, *High School Core Learning Goals: Science* (September 1996). The former (and newer) document is the one reviewed here. It is consciously modeled after the AAAS and NSES models, which are cross-referenced throughout. The Maryland document has, however, been substantially abridged from the models and has lost something in the process. Statements that are quite clear and/or contextualized in the models become unclear in the abridgment.

For the most part, the material is grade appropriate, and the presentation of material for the four grade clusters makes cross-comparison easy. There are, however, some exceptions. Standard 5.8.2 requires grades 5-8 students to "apply Newton's laws of motion," but this is not a reasonable expectation of students who have not yet taken algebra. At this level, discussion should be limited to qualitative (or at most semi-quantitative) relations. Standard 2.8.10 asks the student to "analyze the … tides as related to … gravity." At this level it is reasonable to expect the student to know that the tides are associated with lunar and solar gravitation, but analysis is the province of junior-level college physics majors.

Several strong points deserve mention. The standards are clear with respect to the need for laboratory work and fieldwork, for data analysis, and for critical evaluation. Although these items, too, have been abridged from the national models, the meaning has been preserved reasonably well.

Abridgment without loss of meaning is a respectable goal but one not fully achieved here. The standards ought to be rewritten extensively, and expanded as necessary. Or, as an alternative, the state might simply adopt the documents of which an abridgment has been attempted. ■

Massachusetts



Report Card	1998	2000
English	*A*	*A*
History	*B*	*B*
Geography	*D*	*D*
Math	*F*	*D*
Science	*C*	*A*
Cum. GPA	2.00	2.60
Overall Grade	C	B-

English

The state supplied no evidence that its standards have been revised since 1997.

History

The state supplied no evidence that its standards have been revised since 1998.

Geography

The state supplied no evidence that its standards have been revised since 1998.

Math

The 1997 Framework reviewed in Fordham I is still operative, and its Content strands are repeated in the newer *Guide to the Massachusetts Comprehensive Assessment System: Mathematics* (January 1998), which is now added to make a more comprehensive package. The process standards of the original Framework (e.g., "Communication") do not enter explicitly into the *Assessment Guide* but their prescriptions are presumably to be deduced from students' answers to non-multiple-choice questions. Nothing in the *Assessment Guide*, however, can cancel some of the inflation and false doctrine found in the original Framework. Indeed, it can and does confirm some of them. At grade 10, there is a long question concerning algebra tiles, which are a sort of toy supposed to help teach the algebra of solving certain equations. It would be better to have examination questions concern the equations, not the toy. On page 77, "Find the next number in this pattern" is a poor question unless it is announced in advance that the pattern is an arithmetic sequence. However, many of the problems are quite good and the assessment material does clarify the Framework. The (improved) grades we assign apply to the ensemble.

Science

The document reviewed in 1998, the *Science & Technology Curriculum Framework*, has been supplemented by the January 1998 *Guide to the Massachusetts Comprehensive Assessment System: Science & Technology*. The latter document, closely keyed to the former, sets forth a skeleton for exams at grades 4, 8, and 10. For each Learning Standard in the *Framework*, the *Guide* provides Assessment Expectations and Sample Questions. Although there is no change in the standards themselves, the new material provides substantial clarification not present in the rather fuzzy and sometimes irrelevant vignettes intended for that purpose in the *Framework* itself. For example, the grade 10 standard, "[R]epresent an understanding that compounds form when atoms of two or more elements bond," is followed by the assessment expectation, "describe intramolecular and intermolecular forces, e.g., hydrogen bonding, polarity, Van der Waals forces." This is coupled to two sample questions that further clarify what is expected of the student. In a few cases, the assessment expectation merely reiterates the standard but in most of those situations clarification is provided by the sample questions that follow.

Since the *Guide* reiterates the individual standards, it may be regarded as a replacement for the earlier document, minus the fluff. However, a rewrite intended both to clarify content and to provide overarching principles would be desirable in the future.

Michigan

Report Card	1998	2000
English	*F*	*F*
History	*F*	*F*
Geography	*B*	*B*
Math	F	F
Science	-	D
Cum. GPA	0.75	0.80
Overall Grade	D-	D-

English

The state supplied no evidence that its standards have been revised since 1997.

History

The state supplied no evidence that its standards have been revised since 1998.

Geography

The state supplied no evidence that its standards have been revised since 1998.

Math

The *Content Standards* embedded in this *Framework* are the same as those reviewed in 1998, though omitting some of the introductory material of the earlier document. Our present evaluation is unaffected by those omissions, but the *Framework* also contains material clarifying the intent of the bare *Content Standards*, and permits us to raise (slightly) the scores awarded within the rubric Clarity. Each benchmark is now accompanied by a number of related suggestions for classroom work, or clarifications by example, but there is nothing in the additional information to require revision of our estimate under the other three criteria: Content, Reason, and absence of Negative Qualities. Often the putative clarifications and exemplifications don't actually clarify or produce real examples, but reiterate the benchmark in slightly different words; while at other times the examples are trivial. For example, one suggested "activity" relating to statistics reads, "... staging a class debate in which each side bases its arguments on data it has collected and presented." The essence of statistics as a science is not found in debates using data, but in using data in certain mathematical ways. The Framework demands very little along these lines, and so it goes with the rest of the suggested content of the K-12 program.

Science

The *Michigan Content Standards and Draft Benchmarks* are at their strongest in the organization of large concepts, called Strands and Standards. This section, only five pages long, puts all of the sciences in context in a general way and explains very clearly what each item means and how it relates to the others. The rest of the relatively brief (28 pages) document sets forth details of what students are to learn at each of three levels: Elementary, Middle School, and High School. (These presumably correspond to grades K-6, 7-9, and 10-12.)

The coverage of most subjects is good in a general way. In particular, biological evolution (including human evolution), disease processes, plate tectonics, population dynamics, and the geology of the Great Lakes region are well handled. Extra-solar-system astronomy is mentioned, but too briefly; laboratory tools are mentioned but there is no systematic discussion of lab work. There is essentially no mention of writing, calculating, or mathematical manipulation of scientific concepts. Indeed, one never gets the idea that quantitative expression is essential to science, nor that students cannot be said to understand a concept until they can communicate it.

In general, one has the feeling that the other shoe has not been

dropped; there is almost no detail. Missing are Mendel's laws, Newton's laws, any mention of momentum, any solid discussion of chemical processes, and any real bringing together of the two essential elements of biological evolution, random genetic variation and natural selection. As is too often the case, energy is much mentioned yet never defined.

As far as it goes, the Michigan document is clear and error-free. But as it stands it will be of little use in guiding curriculum development, textbook writing, or exam construction.

■

Minnesota

Report Card	1998	2000
English	F	F
History	*F*	*F*
Geography	*F*	*F*
Math	-	F
Science	-	A
Cum. GPA	0.00	0.80
Overall Grade	F	D-

English

This review covers about a dozen pages, undated, containing Minnesota's standards. They contain two excellent standards on the use of public parliamentary procedures and public speaking. Technical and practical reading and writing are also given ample attention in these materials. However, a large number of standards are not specific, measurable, or demanding. Moreover, literary study gets short shrift in these pages, and academic writing is skimpily described, especially in contrast to the details offered for technical writing; few aspects of a good essay (such as thesis, coherence, paragraphing, transitions, and vocabulary choice) are mentioned. There is nothing on the history and nature of the English language.

Minnesota needs to develop a real set of measurable standards for the English language arts and reading, with details showing increasing complexity through the grades. By high school, the standards should show appropriate intellectual demands for academic writing, and the kind of literary and cultural specifics for the study of American literature in particular that can assure all citizens that their statewide assessments can lead to a common core of high academic expectations for all Minnesota students.

History

The state supplied no evidence that its standards have been revised since 1998.

Geography

The state supplied no evidence that its standards have been revised since 1998.

Math

In 1998 we were not in possession of the present *Framework*, but only of a draft from which it was impermissible to quote. Thus this is the first Fordham evaluation for Minnesota. The *Framework* is elaborately produced and contains, for each of five grade bands, much instruction, philosophy, classroom vignettes, etc., besides the section (Components) containing the mathematical standards themselves. A few inflated quotations from the Components should illustrate the reason for the low grades the documents as a whole were given.

Number sense, high school: "Understand the concept of imaginary numbers in the context of the square root of a negative number." Number sense, post-high school: "Develop an intuitive feel for the location of a point in the plane represented by polar coordinates," and "explore the development of the real number system from historical and cultural perspectives." Middle school: "Determine whether a situation requires an overestimate or an underestimate." Beyond high school: "Understand operations on complex numbers and transcendental expressions by using numerical and visual estimates (e.g., represent a+bi on the complex plane, Mandelbrot set)."

Understanding a concept "in the context of ..." adds nothing; one either understands it or not, and indeed the words "the concept of" are superfluous. "Develop an intuitive feel for ..." is here a windy way of asking for the definition. No situation requires an overestimate or underestimate, though

there are times when one should, e.g., order more carpeting than the estimate calls for. It would be more important to mention De Moivre's Theorem and its proof than to learn fractal appreciation and the Mandelbrot set.

At the high school level, the heading "Students should understand the operations and apply them to solve problems" has, as its most "detailed" item, example, or instruction, "justify the selection of operations used to solve a problem." This is typically indefinite, and adds absolutely nothing to the heading above it.

Another curious example: At the high school level for discrete mathematics is found the instruction, "Explore the combinatorial interpretation of Pascal's Triangle (see Sample Problems HI-3)." But HI-3 says, "Use Pascal's triangle to explore the identity ..." where the identity quoted is nothing but the very definition of Pascal's triangle. In general, the illustrative material provided throughout is primitive, even where relevant.

It is not possible to find in these standards a plain statement of whether students are to learn the multiplication tables, the algorithms for the common arithmetic operations, the quadratic formula, anything at all about Euclidean geometry (though several non-Euclidean ones are mentioned), or about conditional probability. At the post-high school level, where some descriptions are quite ambitious, if interpreted so, the implication is that many of the standard things were indeed taught earlier, but the business of the standards for earlier grades is to *tell us* whether and when.

In all, too much subject-matter choice ends up left to teachers, or local districts, who should have more guidance, in plainer language, than is found here.

Science

The *Minnesota K-12 Science Framework* is a very long, comprehensive document that covers not only content but pedagogical practices, connections with other subject areas, vignettes, and overall purpose and philosophy of the education process. As far as the content standards that are the principal concern of this report, Minnesota had previously determined to follow the *National Science Education Standards* (*NSES*), coordinated with the *Minnesota Graduation Standards* (*MGS*). Both of these are set forth in the *Framework*.

As it is not the intent of this report to review *NSES* per se, it need merely be noted that the material is scientifically comprehensive and accurate, and clearly sets forth the structure of the sciences. The coordination with *MGS* is straightforward, and the only difficulty a reader might have in comprehending the content lies in the great length of the document. Like nearly all state standards, this one tends to short-change extra-solar-system astronomy. There is emphasis on the need for clear communication, but explicit reference to the use of mathematics is skimpy.

A distinction is made between students whose formal education will terminate with high school graduation and those who will go on to further studies. Yet both groups should be able to acquire a solid grounding on the basis of the Minnesota standards. ■

Mississippi

Report Card	1998	2000
English	D	C
History	-	C
Geography	F	D
Math	B	A
Science	*F*	*F*
Cum. GPA	1.00	1.80
Overall Grade	D	C-

English

This review covers the 1996 standards document and the *Reading Instructional Intervention Supplements*, grades K-3 (1998) and 4-8 (1999). The *Supplements* address most of the problems in reading and literature in the 1996 document; their standards are well organized and readable, indicate that phonics instruction will take place (although it is not clear if instruction will be systematic), sort higher- from lower-order skills, address vocabulary study extremely well, cover literary elements and techniques well, and are clear, specific, and measurable. The 1996 document had strengths of its own: it clearly expects students to use Standard English for speaking and writing, and it mentions titles of well-known literary works at the high school level to suggest reading levels expected.

However, the high school standards remain to be revised, as do the other areas of the curriculum not addressed by the Supplements. A single, coherent organizational framework for all areas of the English language arts and reading is badly needed, with increases in intellectual complexity clearly visible in all areas and through the high school years. Mississippi also needs to spell out some cultural and literary specifics in its standards, such as key authors, works, literary periods, and literary traditions, to make clear its academic expectations for students' knowledge of the nature and history of their own country's literary and civic culture. The excellent list of writers born in Mississippi, now found in an appendix, should be incorporated into the standards.

History

The *Mississippi Social Studies* standards is a long document (some 282 pages). It is organized thematically; hence chronologically based history is not supported here. There is very little attention to historical specifics. United States history is largely absent from the earlier grades and European/world history is poorly covered in the upper grades. There are tough "benchmarks" statements for grades 4, 8, and 12 (for assessment purposes), yet there are no assurances that these standards will actually prepare students to (for example) "understand the democratic foundations, principles, and people that have contributed to United States history." If Mississippi educators were serious about that statement, only clear, specific, and measurable content standards could possibly deliver the desired result.

Geography

Mississippi receives a D with a score of 53, an increase of 7 points since 1998. The adopted framework's geography content material has changed somewhat for the better. A higher score in general characteristics indicates improvement in teaching strategies.

But other changes, not really subject to our criteria, bode ill for geography as a specific and identifiable subject. Its special tools (maps, globes, compasses, etc.) are now called "social-studies tools." And students are asked to create maps using "social-studies skills." Finally, in the earlier draft, high school options listed two geography elective possibilities for ninth-grade students and one for grade 11. In the new framework, geog-

raphy is not listed as an elective at all, though "competencies" (broad content statements that must be taught) are included for Introduction to World Geography and Advanced World Geography.

Math

The Mississippi *Mathematics Framework* (draft for year 2000) is a very large (250 pages) document with very little inflation, though some straining for effect, as in the Algebra I (page 129) classroom exercise, "Find the perimeter and area of a rectangle with radical terms as dimensions." The algebra courses are evidently of the traditional variety, somewhat lacking in deductive structure but better than many present-day outlines and texts. Good illustrative "word problems" are asked for, which is a great deal. Unfortunately, not much is made of deduction in the geometry, either, so that Reason in general is the weakest feature of this *Framework*. Some unnecessary advice concerning manipulatives, even algebra tiles, and some unnecessary reliance on calculators damage the score under Negative Qualities. Just the same, while less than ideal, this *Framework* is extraordinarily comprehensive and lucid, outlining an excellent grade-by-grade program of teaching, and written in straightforward no-nonsense prose. A good teacher will be given every opportunity, via the richness of the references and illustrations, to compose a model curriculum and teach it rigorously.

Science

The state supplied no evidence that its standards have been revised since 1998.

■

Missouri

Report Card	1998	2000
English	F	F
History	F	C
Geography	C	B
Math	*F*	*F*
Science	*C*	*C*
Cum. GPA	0.80	1.40
Overall Grade	D-	D+

English

This review encompassed the 1996 standards document and Assessment Annotations for Grades 3, 7, and 11 (1999). The standards document has several strengths; it makes very clear its expectation that one goal of the English language arts and reading curriculum is to prepare students for informed participation in American civic life. Speaking and listening skills are extremely well addressed to support this goal. The document also has strong standards on group interaction, decision-making, and the use of democratic principles.

However, large numbers of standards are not specific or measurable; in fact, only about half seem to have been judged measurable in the Assessment Annotations. Nor do they show increasing complexity through the grades. Standards in reading are not strong, especially with respect to the development of vocabulary. Nor are writing standards. Literary study is inadequately addressed, and there are no literary or cultural specifics at all, not even a requirement that students study American literature. The document clearly promotes in a very heavy-handed way a process approach to reading and writing, as well as a problem-solving approach to the organization of academic study in the English language arts and reading. A more inclusive pedagogical approach is badly needed, together with a more coherent organizational scheme that cuts down on repetition and scatter, improves coverage of areas inadequately covered, such as literature, and reduces the emphasis on problem-solving and group interaction that now overwhelms these standards.

History

Given a first glance at this framework, the reader would not be wrong to sense that Missouri has replaced history with some sort of sociology called "historical perspective." Despite the low point totals and grade, however, these standards do have clarity; they're well written; and it is clear to this reviewer that their authors strove to create a document adaptable to the needs of Missouri's schools. Nonetheless, these "standards" collapse from the lack of specific content. There are no specifics for United States, European, or world history. There is nothing here for parents to check whether or not their children are learning important historical information. What is here instead is a lot of historical skill-making. Simply put, without specifics, there are no standards for every child in Missouri and there can be no standard assessment, either. (The "Content Specifications" are not nearly enough to bear this burden.) In the end, this well-designed and carefully presented document will be unread and unused for the simple reason that it consigns the real "standards" decisions to the individual schools of Missouri: "We assume that such decisions on specific history content can and should be made at the local level by faculties thinking reflectively and using a variety of resources" (page 109). While noble and supportive of local faculty (who it is assumed will do the right thing), the truth is this is a total abdication of the obligation of creating state educational standards for which every teacher and child is held accountable.

Geography

Missouri receives a B with a score of 70, an increase of 3 points since 1998. The assessment guide is straightforward and concise. Geography has one "knowledge" standard with grades 4, 8, and 11 benchmarks (three for each grade cluster) arrayed beneath. The benchmarks themselves are relatively general but the performance recommendations that follow are more specific.

The material appears to be based upon *Guidelines for Geographic Education*, published in 1984, and does not emphasize the spatial perspective unique to geography that is present in later models. Oddly, geography in the state's Social Studies Framework (reviewed in 1998) places considerable emphasis on the national standards model, rather than the *Guidelines*.

Students at every level must prove a solid understanding of location and place—basic geographical concepts—the first two of the "five themes of geography." There is no mention of learning the vocabulary of geography but this is implied within the thematic approach. Grade 8 students must know how to solve problems using mental maps, a concept often ignored but very important to a thoroughgoing geography education. Grade 11 students are required to do considerable problem-solving.

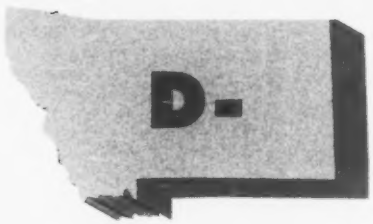
Math

The state supplied no evidence that its standards have been revised since 1998.

Science

A new document, *Assessment Annotations for the Curriculum Frameworks: Science, Grades 3, 7, and 10* (no date) has been published. However, its main purpose is apparently not to modify the existing Missouri Science Framework reviewed in 1998 but to reconcile it with the statewide examinations put in place by the Missouri Assessment Project. As the grade-level clusters in the *Framework* are K-4, 5-8, and 9-12 while the exams are administered at grades 3, 7, and 10, it is necessary to set forth which items are to be assessed and which are to be deferred. (Curiously, *Assessment Annotations* cites grade clusters K-1, 3-4, 5-8, and 9-12 but the *Framework* lumps grades K-4 together.) For our purposes, there has been no change. ■

Montana



Report Card	1998	2000
English	-	F
History	-	-
Geography	-	-
Math	F	D
Science	-	D
Cum. GPA	0.00	0.66
Overall Grade	F	D-

English

This review covers the standards Montana set forth in October 1998 and June 1999. They are extremely limited, limiting, and underdeveloped. They need extensive revision if they are to serve as an academic guide to local school districts, whether or not there are ever to be state assessments. In general, the state's standards are not specific, comprehensive, demanding, or measurable. They need to be rewritten to address all of these problems and to eliminate all the authoritarian moralizing they now contain, e.g., by grade 12, Montana expects students to "develop and defend multiple analytic and interpretive responses to literary works." Good standards documents, among other things, show intellectual progress through the grades, expect the systematic teaching of phonics in the primary grades, go beyond a process or strategy approach to writing to provide indices of quality in writing, give some details on written-language conventions through the grades, and offer a reasonable guide to literary study that includes key works or authors, and literary periods or literary traditions in American and British literature. Montana's standards do not do these things. For a document purporting to guide literary study for children in all the state's public schools to mention only Indian literature, for example, with no attention at all to American literature (or even Montana authors), is professionally unconscionable. The objectives laudably expect proficient students by grade 8 and 12 to demonstrate reading ability at those grade levels, but fail to suggest how they are to get there.

History

Montana receives an incomplete. It did not submit history standards for review.

Geography

Montana receives an incomplete. It did not submit geography standards for review.

Math

This *Standards* is an improvement on the document surveyed in 1998, but mainly in language. In particular, the "educationese" jargon of its predecessor is now gone, and the instructions are brief, legible, and almost devoid of "False Doctrine" and "Inflation." As a result, some of its instructions are understandable and even testable, if interpreted by a sympathetic reader with care. But the prose is very seldom definite enough to tell us just what a student should know, and when, about any given topic. "Solve quadratic equations" is fine, but whether by calculator, or for only equations with integral roots, or by a formula understood and provable by the student, is not said. Our assessment of Content therefore represents a guess. There is no evidence that deductive reason is called for anywhere, though of course an individual teacher or school district is not prevented from teaching that, and much else, since the text does hint at almost everything in the standard curriculum. Sometimes it is clear that content is wanting, however, as when the normal curve of statistics is to be described "in general terms" before being used.

Science

The *Montana Standards for Science* (June 1999) consists of one introductory page, six pages of standards, and four pages describing four levels of performance indicators (Novice, Nearing Proficiency, Proficient, and Advanced) at Grades 4, 8, and 12.

Given the brevity of the document, the distribution of items is adequate; no large areas of science are neglected. Indeed, in proportion to the overall length the often-neglected areas of evolution, plate tectonics, and extra-solar-system astronomy are given their fair share of the skimpy overall space, though much of the important material appears for the first time at grade 12.

Quantitative matters are given little emphasis, though it is laudable that a grade 12 standard expects the student to "select appropriate means for representing, communicating, and defending results of investigations and scientific and technological arguments using appropriate mathematical analysis and graphical representation." As good as this is in the context of the entire document, it asks for an awful lot within a tight package.

There is much to be said for leaving curricular matters to local entities, but I fear they will find little more in this document than vague encouragement in carrying out their tasks of curricular planning and learning evaluation. Certainly, it is too vague to be of much use in accomplishing the task set forth in the covering letter that accompanies the Standards: "Over the past 10 years, Montana had engaged in serious examination of what we want our students to know and be able to do."

■

Nebraska

Report Card	1998	2000
English	-	A
History	F	C
Geography	-	F
Math	F	C
Science	D	B
Cum. GPA	0.33	2.20
Overall Grade	F	C+

English

This review covers the standards set forth in February 1998. Overall, this is a fine professional document; for the most part, its standards are clear, specific, demanding, and measurable. They cover most areas in the English language arts and reading well, and for the most part they show increasing difficulty through the grades. Laudably, the document builds in no anti-literary requirements or expectations; nor does it attempt to promote any particular pedagogies. Even more laudably, it requires achievement of a specific grade level for reading at each of the three levels to be assessed (4, 8, and 12), clearly expects systematic teaching of decoding skills in the early grades, contains clear vocabulary objectives through the grades, and makes specific mention of "the American culture" and the study of British literature and "Nebraska authors."

This document can be strengthened in future revisions by providing more details on written-language conventions through the grades and especially by incorporating into its standards for grades 8 and 12 more literary and cultural specifics such as core titles or authors, and specific literary periods and traditions from American literature in particular, as well as from British and other world literature. Such specifics would help teachers and parents understand better how students are to be able to maintain our civic culture when they graduate from high school.

History

The *Nebraska Social Studies/History Standards* are based on ten strands/themes, presumably derived from the National Council for the Social Studies. The standards are largely clear and generally assessable. There is a lot of first-rate history here, including core content, but it is muted by distribution in grade clusters rather than grade by grade (where teachers and students can be held accountable and where parents can track their children's progress or lack thereof). Additionally, without a sound historical background where students learn the importance of chronological presentation as a means to understand and appreciate history, the ample content surrenders much of its effectiveness. Appropriate historical skills are offered, but they are not directly connected to content. There is no evidence that political and social dogmas will not be tolerated nor any assurances that student manipulations will not be approved.

Geography

Nebraska receives an F with a score of 43. The state uses a confusing social-studies thematic approach that is inconsistent and messy. No national geography models are credited. A "Suggested Course Outline" on page 39 provides a list of the National Geography Standards' content areas but does not say what to do with it. Geography's spatial perspective receives little attention and, overall, coverage of the subject is very thin.

Specificity in these new social-studies standards (those that relate to geography at all) is spotty: a few standard statements include "by" or "such as" clauses that provide clarification, rigor, and measurement possibilities: "1.8: Students will compare and contrast

the relative location of people, places, and things by ... using objects to show near/far, up/down, left/right, behind/in front.... Locating land and water on a map using north, east, south, and west" and "[c]onstructing a simple map of a familiar area incorporating cardinal direction, scale, and map symbols, such as classroom, home, and playground."

Others are too broad and open-ended to be useful. For example: "4.5: Students will explain how historic and geographic factors affected the expansion and development of Nebraska" or "8.4.1: Students will describe early physical and cultural development of mankind from the Paleolithic Era to the revolution of agriculture, such as ... the impact of geography on hunter-gatherer societies."

Standards are presented for grades K-1, 2-4, 5-8, 9-12. For the most part, elementary standards limit students' learning to geography's fundamentals. All other content areas receive very low scores. Middle-school standards are similarly weak, with adequate scores seen only in human systems. Geography is presented as it relates to American and world history.

Scores improve in high school because of a world geography course that stresses higher-order thinking. Categories of skills and applications receive highest scores for this course but reviewers are hard pressed to know when students will acquire the geography content necessary to exercise these skills.

Nebraska L.E.A.R.N.S., a document that includes standards for reading/writing, math, science, and social studies, is printed on tabloid-size newsprint with a color cover and interior photographs reflecting a conscientious effort to get the state's standards into the hands of the general public.

Math

This unpretentious document is printed in the format of a tabloid newspaper, along with the standards for science, English, and social studies, and includes hints for parents as well as content standards and some philosophy of mathematics education. Its brevity detracts from its usefulness, despite its disclaimer that it doesn't intend to be a "curriculum guide," especially at the high school level, where most of its other failures (content as well as clarity) are found. It is significant that the definition of Mathematical Reasoning, given in the introductory remarks, portrays reasoning as something "used to verify the reasonableness of answers," as if it were a skill in mental arithmetic; and indeed there is no evidence anywhere that something like Euclidean geometry is to serve as anything but a utilitarian description of the world around us. At the more elementary levels, however, the indicated content is traditional and sufficient, though the preparation for algebra indicated by grade 8 really deserves a richer continuation than the grade 12 level calls for.

Science

The science standards reviewed here are part of a compendium, *Nebraska L.E.A.R.N.S.*, whose development was set in motion in 1997. The science standards part is dated May 8, 1998. This new document is a complete departure from the earlier one reviewed in 1998.

The new science standards draw heavily upon the NSES and AAAS models, although there is no bibliography or any citations. Nevertheless, the Nebraska standards are no slavish copy of the national models. Though quite brief, they are careful in setting out what is expected in science learning. For example, though the inherently vague terms "investigate" and "understand" are used, they are carefully defined in terms of measurable activities, e.g., observing, measuring, inferring, explaining, analyzing, judging. The term evolution is used to describe what happens not only in biological systems but in other natural systems as well. Coordination with mathematics is explicitly required, and such words as "functional relationship," "geometry," and "trigonometry," rarely seen in K-12 science standards, are used. (Oddly, the word "algebra" does not appear.)

The grade-level clusters used are somewhat unconventional but entirely workable: grades K-1, 2-4, 5-8, and 9-12. Students are expected to use scientific instruments at the K-1 level and this emphasis continues throughout.

Important physical phenomena such as frames of reference, refraction, reflection, and electric circuits are introduced at the grades 2-4 level. So is the rather abstract idea (under Science and Technology) that some natural resources such as beauty, security, and quiet, are intangible but valuable. Quantitative and semi-quantitative physical and chemical concepts are introduced at the grades 5-8 level, as are most of the elements essential to understanding biological evolution.

Students at this level are expected to understand some important but subtle matters. For instance, "State an example of when societal priorities influenced research priorities," or, "Distinguish

between scientific fact and scientific theory." Although it would be desirable to see more emphasis on extra-solar-system astronomy, there is at least modest attention paid to this important subject area beginning in grades 5-8.
In high school, students are expected to understand the sciences at a sophisticated level, such as, "Use estimates of magnitude of error to analyze disparities between estimates and calculated answers when making measurements." Other topics covered include the distinction between kinetic and potential energy, the mechanism of plate tectonics, the method of determining relative and absolute geological ages, and the evolution of stars.

The level of scientific accuracy is generally high, though there are a few instances of error and ambiguity. The insertion of two items distinguishing between macro- and micro-evolution (of only six grade 12 items pertaining to evolution) truckles to pseudoscience, and the vague item (for twelfth graders) "Investigate and use the theory of biological evolution to explain diversity of life" is an inadequate representation of the significance of evolution in the life sciences. Although there is laudable emphasis on mathematics, the word "writing" never appears anywhere in the document.

For the most part, the Nebraska science standards provide the basis for a good education in science. ■

Nevada

Report Card	1998	2000
English	-	B
History	-	C
Geography	-	C
Math	-	C
Science	-	C
Cum. GPA	-	2.20
Overall Grade	-	C+

English

This review is based on the August 1998 document. Overall, this is a good set of standards with many very positive features. For the most part, the standards are clear, specific, measurable, comprehensive, and demanding. They show increasing levels of difficulty over the grades. All areas of the English language arts and reading are addressed quite well, especially the strands on research and language conventions. In addition, the reading strand contains an excellent vocabulary subsection over the grades. The study of American literature is specified in a standard in the literature strand, and the document makes clear its expectation for systematic instruction in phonics. There are no anti-literary or anti-academic requirements or expectations. The one extremely important limitation in this document is its failure to specify more literary and cultural specifics—key authors or titles, or literary traditions and periods, in American and British literature. Without some of these specifics, it is not clear how Nevada can create common and high academic expectations for all its students and maintain the basis for our civic culture in a new generation of young people.

History

The *Nevada Social Studies Standards* for history present a clear design for introducing material and expanding it through the grades. As is often the case, some items are remarkably detailed while others are incredibly vague. The specifics of history improve in the later grades; still, there is virtually no world or European history anywhere. Little attention is given to major figures of U.S. history (with the prominent exception of Martin Luther King, Jr.). And some commendable content is unrealistic in its expectations for young children. One of the examples of "performance level descriptors" in grade 2 is to "recount thoroughly and with accuracy a story about slaves in the Civil War." Another says, "[G]ive rich details and illustrate two or more people who were important in the American Revolution." Such expectations for grade 2 are certainly admirable, but this level of mastery is beyond most children at that age.

Geography

Nevada receives a C with a score of 69. Using *Geography for Life*—the National Geography Standards—as a model, the state's new draft standards, while spotty and uneven, look as if they could turn out well. Currently, content coverage is lumpy. Some topics within particular content areas receive tremendous attention while others do not. For example, the topic regarding natural hazards (floods, volcanoes, hurricanes, and the like) receives attention across all grade levels within the content area of Environment and Society. But when it comes to knowledge of Places and Regions, this huge geographical content area is approached historically, eroding its geographic purpose and focus. In addition, economics and sociology, rather than geography, dominate some of the standards regarding Human Systems.

Standards are written primarily for five grades—2, 3, 5, 8, and 12—two more than the typical three. But the layout is confusing

to read: "Geography Content Standard 1.0: the World in Spatial Terms" runs across the first page without any explanation. It is underpinned by a list of some standards for kindergarten and grades 1, 4, 6, and 7. The remaining 14 pages of geography standards list additional "World in Spatial Terms" standards (subheaded "Map Use") and standards covering other content areas for grades 2, 3, 5, 8, and 12. This and other confusing drafting inconsistencies should be ironed out prior to final publication.

Many of the standards are too broad. They tell us what students should know and be able to do without telling us enough about how students can prove their knowledge. For example, Geography Map Use 1.5.2 asks students to "[i]dentify the characteristics and purposes of maps and globes." Specificity would enhance this standard if it continued "... by describing their basic elements, e.g., title, legend, cardinal, and intermediate directions, scale, grid, etc." (quoted from the *National Geography Standards*, National Geographic, 1994).

The standards grid employs short descriptions at the ends of each row within a standard. For example, Content Standard 1.0's Map Analysis has the grade 2 student "identify the difference between a map and a globe," then in grade 3 "recognize different types of maps," then in grade 5 "identify the purpose and summarize the content of maps of similar areas," then in grade 8 "compare and contrast maps of similar areas for purpose, accuracy, content and design," then in grade 12 "analyze maps for similarities and differences in purpose, accuracy, content and design." This presentation, a progressive reiteration designed to indicate increasingly sophisticated levels of cognitive development, is not uncommon. Unfortunately, the technique makes the standards appear boring and heavy-handed, particularly as each column is topped with the phrase, "Students know and are able to do everything required in earlier grades and ..."

Finally, the standards are uneven in rigor. While good emphasis is placed on skills and applications, some requirements show up a little late. For example, being able to "locate and describe ecosystems on Earth" is not necessarily a demanding task for fifth graders, particularly as they have been asked to "Locate various ecosystems on Earth" in grade 3.

Math

These *Content Standards* (1998) are given grade by grade in K-8, an unusual and commendable practice, but with high school ("by the end of grade 12") treated as a whole. Fordham I did not evaluate any previous version of Nevada standards, which were in the process of being written at that time. The writing in them is generally excellent, but the indicated content falls off rapidly as the standards for middle school and especially high school (through grade 12) appear. Inequalities are not mentioned, nor the quadratic formula, nor any hint at geometric constructions in the classical manner: geometry is treated as an empirical science, with lots of nomenclature. Pages 22 and 23 treat reasoning rather abstractly, but the rest of the content doesn't show any places where these ideals would be realized. An algebraic item on page 32, for grade 12, asks students to be able to "[s]olve systems of two linear equations both algebraically and graphically; use graphing calculators as a primary tool in solving these problems...." Given that single linear equations are to be understood and solved by grade 8, this represents very little progress over four years of school, and the idea that graphing calculators are to be a "primary" tool for this purpose shows how little algebraic reasoning enters into the expectation here.

The unnecessary glossary is lengthy and often incorrect. Not entirely incorrect but representative of a very unmathematical outlook is the definition of "odd number" as a number "that has 1, 3, 5, 7, or 9 in the ones place." Numbers expressed in Roman numerals can also be odd. Under False Doctrine, we mention 6.14, "Use technology, including calculators, to ... define ... quantitative relationships such as patterns and functions," and under Inflation, "Compute with rational and irrational numbers to solve a variety of problems including rates ... commissions, taxes." Taxes might sometimes become irrational, but never the numbers that describe them. Such "real-life" applications are not serious.

Science

The *Nevada Science Content Standards for Grades 2, 3, 5, 8, and 12* and *Indicators of Progress for Kindergarten and Grades 1, 4, 6, and 7* (August 1998) have been integrated into an extensive table that gives a clear idea as to how students ought to progress in their understanding of the various items that constitute the standards. The standards are set grade by grade through grade 8 and for grade 12. However, very few standards are listed for grades 6 and 7; this is

presumably a project for the future. Although the items are well organized at the level of smallest detail, the overall impression is of a laundry list.

There are some incongruities. For example, third graders are to "[d]escribe objects in terms of their observable properties (e.g., state of matter, size, shape, color, texture)" under the rubric of Physical Properties and to "[s]ort and classify objects according to observable properties (e.g., size, weight, shape, color)" under Chemical Analysis, while second graders are to "[p]ut small objects together to form bigger objects" under Chemical Bonding. Fourth graders are to "[i]dentify the components of our solar system ..." under Energy Transfer and Transformation in the Solar System.

Some items are postponed too long. "Observe and describe the sun, moon, planets, and stars" appears at grade 2; in most state standards this is a kindergarten item. Location of points on the Earth by means of latitude and longitude is introduced as grade 8 and grade 12 items; contour maps appear at grade 12. Only at grade 12 are students expected to know that the carbon-carbon bond allows a rich variety of molecular structures including those essential to life. Likewise, the term photosynthesis and its implications do not appear until high school. The fact that complex organisms always develop from a single cell is surely accessible at levels below grade 12, and surely items concerning the fossil record should appear earlier than that.

Some items in this document ought to be present in all state standards but are unfortunately uncommon. Among these: "Explain that some diseases are caused by germs and some are not; diseases caused by germs may be spread by people who have them" (grade 3). The difference between intrinsic and extrinsic properties of matter is introduced at grade 12. So is the superposition principle for waves.

Some of the fundamental ideas of evolution are introduced as early as grade 3 and then built upon steadily as the student advances. There are some inconsistencies, however. One item concerning the evolution of behavior appears at grade 8 but an almost identical item appears under a different rubric at grade 12.

Quantitative expectations appear, laudably, at an early level. Third graders are expected to make graphs. They are expected to "[g]ive rough estimates of numerical answers to problems before calculating" and "[d]etermine whether measurements and descriptions are reasonably accurate"—indispensable scientific skills that, sadly, few college freshmen have ever developed.

In contrast, quantitative Newtonian dynamics is given short shrift. A precise treatment of energy is absent. Extra-solar-system astronomy and cosmology, and plate tectonics, are give far too little attention, and the student is denied the opportunity to see how cosmic history, Earth history and the history of life merge seamlessly into each other. The importance of classical scientific experiments is introduced in grade 5. Unfortunately, that is the end of it.

There are just a few errors. Standard 1.8.5 states that "moving magnets produce electric forces in conductors" but in fact the forces are present in nonconductors as well. Standard 3.8.1, "Investigate and describe how heat moves from one object to another at different rates, depending on what the objects are made of and whether they are touching one another" is garbled and contains several misleading concepts. The principle stating that "systems tend to become less ordered over time" is incorrect unless the crucial word *closed* is included. Not all viruses are composed of DNA. The items relating to mutation, which appear at grades 7, 8, and 12, are vague and confusing.

Taken as a whole, the Nevada standards are satisfactory but not remarkable.

■

New Hampshire

Report Card	1998	2000
English	D	D
History	C	C
Geography	*B*	*B*
Math	C	C
Science	F	F
Cum. GPA	1.60	1.60
Overall Grade	C-	C-

English

This review covers New Hampshire's final version of its standards, put out in June 1995, and a K-6 addendum, put out in June 1997. The documents have a number of positive features. They expect students to use Standard English in speaking and writing, and New Hampshire is one of the few states to expect students to study classical and contemporary American and British literature, as well as literary works translated into English. The documents also incorporate into objectives such literary specifics as Pulitzer and Nobel prize winners, writing by local and regional authors, as well as books receiving Newbery and Caldecott awards.

However, a large number of objectives lack specificity and measurability, the development of a reading vocabulary, or systematic word study, is given no attention at all through the grades, and it's not clear that students will receive systematic instruction in phonics. The addendum in K-6 does little if anything to improve the deficiencies in the earlier document. New Hampshire needs to revise its standards' organizational scheme so that each strand is coherent, reduce its emphasis on process standards, and develop more specific and measurable standards. In addition, it needs to spell out some key authors, works, literary periods, and literary traditions in its standards to make clear its academic expectations for students' knowledge of the nature and history of their own country's literary and civic culture.

History

In July 1998, an *Addendum* to the New Hampshire standards was published. Given that it was not available for the earlier review, it is now included and the points and total score have been revised to reflect that change. While this *Addendum* document adds more information on state assessments, particularly for tenth grade, it does not add anything of substance to the standards themselves. In fact, the addition of this document (which makes clear that no assessments will be given in the elementary grades) actually reduced the raw score and total points. The reviewer erroneously gave credit for elementary assessments in the 1998 Fordham study.

Geography

In July 1998, an *Addendum* to the New Hampshire standards was published. However, this document does not address geography standards in any depth. Therefore, New Hampshire's grade remains unchanged from our 1998 review.

Math

The three *Addenda* (1994, 1995, 1996) for grades K-3, 4-6, and 7-10, respectively, partly supplant and partly duplicate the K-12 *Curriculum Framework* (1995). The 1995 Framework alone was graded in Fordham I without the Addenda, which were not at the time supplied to us. (In the published report, Fordham I, there was also a regrettable misprinting of the state's totals.) We now take all four documents together as representing New Hampshire's "standards," albeit with some ambiguity owing to the overlap in coverage, often exhibiting different language or emphases. Much of the vagueness of the *Framework* is repaired

by the *Addenda*, though the gain in clarity does not always improve what is intended. For example (p. 23 of Grades 7-10): "provide opportunities for students to solve linear, quadratic, polynomial, exponential, and other equations using graphing calculators to explore the relationships between the solution of the equations and the zeros of the function" (as if there were a difference), and a reference here points to an instruction to use "algebra tiles" or "Algeblocks" in this connection, quite a bad idea. Occasional wise cautions concerning the use of calculators are given abstractly but belied by the enthusiasm of advocacy in particular connections. The language throughout the *Addenda* is mostly plain and unaffected, their best feature.

Science

The rather thin 1995 *New Hampshire K-12 Science Curriculum Framework* has been supplemented (though not superseded) by two considerably more detailed booklets: *A K-6 Science Addendum* and *A 7-10 Science Addendum*. These documents, dated respectively August 1995 and August 1996, apparently existed at the time of the 1998 evaluation but were not made available to us.

The *Addenda* contain a considerable amount of material other than standards. However, we restrict our consideration here to the information bearing on science standards. In the *Framework*, standards are set only for the ends of grades 6 and 10. The *Addenda* do not modify these standards but add intermediate standards at grades 2, 4, and 8.

These additional standards are presumably aimed mainly at helping teachers gauge student progress toward the grades 6 and 10 levels. However, they do specify knowledge expected of students that could not have been inferred from the grades 6 and 10 standards, thin as they are. For instance:

- [At grade 4] students will be able to measure their own pulse rates after different amounts of exercise, collect data, graph results, and discuss how pulse rate relates to exercise.

- [At grade 2] students will be able to describe what they feel when riding in a car or school bus when the vehicle starts/stops or goes around corners left/right, and suggest an explanation for what they feel in each case. Devise an experiment with toy cars and objects on them to test their explanations.

These additions, however, only modestly ameliorate the general impression of spottiness and disorganization. A thorough rewrite, with a view to completeness and especially to grounding the individual standards in a solid theoretical framework, is much to be desired. ■

New Jersey

Report Card	1998	2000
English	F	F
History	F	F
Geography	F	D
Math	C	C
Science	A	A
Cum. GPA	1.20	1.40
Overall Grade	D+	D+

English

This review of the 1997 version of New Jersey's standards was supplemented by a review of the "Directory" of test specifications and sample items for statewide assessments put out in February 1998. Although the standards document is studded with educational and "constructivist" jargon, and is overwhelmed by many serious limitations, the Directory is a fine, professionally written document that addresses most of the deficiencies in the standards document. The Directory addresses the elements of good writing, lists clear rubrics, or criteria, for assessing reading, speaking, listening, viewing, and writing, makes clear that the conventions of English will be expected in writing as well as in speaking, and provides details on these conventions. In general, the Directory contains the kinds of details in its evaluation rubrics, skills specifications, and content domain outlines that should be in a standards document. It also offers an array of sample reading passages, questions, and writing prompts for elementary, middle, and high schools that are comprehensive in scope and demanding in depth.

However, there are still no literary and cultural specifics in either document. There is not even an explicit expectation that students will study American literature, however conceived. Moreover, reading skills are interspersed with literary study in both documents. New Jersey still needs to work out a core of authors, works, literary traditions, and literary periods—that is, some cultural and literary specifics—in order to assure its citizens that its schools can develop educated citizens capable of maintaining this country's civic culture—its basic political principles, institutions, and processes—through knowledge of the history of its literary and intellectual culture.

History

The *New Jersey Social Studies Curriculum Framework* is a massive document, the largest such in the nation, and thereby provides a grand example of confusing quality with quantity. To be sure, the words "United States/New Jersey History" and "World History" appear prominently in the text, but readers should not be deceived; as history standards go, we've seen none worse. They're full of dogma, politics, and ideology and are all but devoid of balanced content. They and their illustrative lessons exemplify all that is bad in historical research.

Consider Christopher Columbus. On page 247, young children (5-8 years old) are told, "In the interest of diversity, students must learn to examine different versions of the same event...." A few lines later readers are instructed to research "how is [Columbus's arrival in America] perceived today by reputable historians?" Given the far from disinterested "resources" provided, teachers, young children, parents, and the good citizens of New Jersey have little doubt what was intended by "reputable historians." In sum, while the standards writers suggest that "different versions" should be explored, children are provided with a single highly politicized treatment of the Columbus story. While the exploration of various interpretations or perspectives on past events may be a useful task for mature students

who have grasped the fundamentals of historical study and have mastered relevant factual information, the New Jersey model is to skip teaching objective historical research and go straight for particular interpretations (usually politically charged). Students, particularly young students, cannot possibly understand the complexity of "Columbus as monster" (as an empirical position worthy of examination) without understanding the historical context of Columbus and his time. The Columbus example is typical of the use of history content here. This model amounts to little more than indoctrination.

It should be noted that New Jersey officials are quick to claim that the New Jersey standards are not *standards* required for all children. Rather, the idea is that while the state standards may be used, local schools will determine their own standards. Such revelations only drive the point home: state history standards for New Jersey remain to be written.

Geography

New Jersey receives a D with a score of 50, an increase of 13 points since 1998. This lengthy framework is designed to help schools realign the social-studies curriculum with state standards published in 1996. The framework underscores its original Cumulative Progress Indicators (essentially benchmarks that we described in 1998 as "extremely general") with extensive learning activities that should help teachers explain concepts in the standards. The framework also contains a "connections" heading for each indicator where concepts are linked to standards in other subjects. A list of resources accompanies each indicator. While well intentioned, the document is arranged in a most cumbersome manner that will prove difficult for laypersons to utilize.

The standards themselves are basically unchanged except for one jarring instance: the standard that encompasses geography's fundamentals both in New Jersey and national standards is called "World in Spatial Terms." Everything stays the same as in the 1996 version in that content area except that it has a new heading—Physical Geography (a content area unmentioned in the 1996 standards). But calling it physical geography does not make it so. This heading oversees neither physical processes, nor physical systems, nor physical features—the content of physical geography. But it does contain the map, terminology learning, and applications that were included in 1996 under the original heading.

Math

The state supplied no evidence that its standards have been revised since 1998.

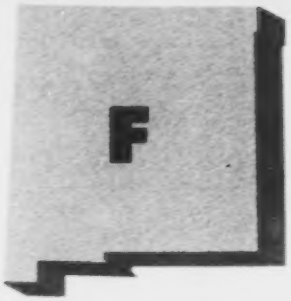
Science

The fine New Jersey *Core Curriculum Content Standards* reviewed in 1998 are still in effect. They have been supplemented with two documents, *Directory of Test Specifications and Sample Items for the Grade Eight Proficiency Assessment (GEPA) and the High School Proficiency Assessment (HSPA) in Science* and a similarly titled document pertaining to a grade 4 assessment.

Since one of the purposes of a set of standards is to furnish a basis for uniform examinations, it is interesting to note that the *Specifications* are crystal clear, well conceived, and appropriate, yet challenging for the grade levels to which they are addressed. The *Specifications* are themselves well organized, proceeding from general Macro Statements, based on the standards and refined for the grade level of the students concerned, to Knowledge Statements, detailing what the students ought to know, and finally to Skill Statements, which explain how students can demonstrate what they know. Meticulous attention has been paid to distribution of the questions across the subject matter so as to achieve breadth of coverage.

The sample test questions are generally well conceived, although several have incorrect answers and a few open-ended questions suggest incomplete answers. A student who does well on exams modeled after the correct questions will likely have a good understanding of science at the appropriate grade level. ■

New Mexico



Report Card	1998	2000
English	-	D
History	*F*	*F*
Geography	*F*	*F*
Math	*F*	*F*
Science	*F*	*F*
Cum. GPA	0.00	0.20
Overall Grade	F	F

English

This review covers a document containing New Mexico's Content Standards and Benchmarks, adopted in 1996, and the Performance Standards, adopted in 1998. The document has many positive features: it expects systematic instruction in decoding skills in the primary grades, and its benchmarks seem to address all areas of English language arts and reading adequately, if not well. However, the document as a whole is confusing to read: the standards and benchmarks were evidently written by one group of people, and the performance indicators by another, and the latter do not map clearly onto the benchmarks. One is tempted to infer that the second committee was stuck with the organizing framework of ten categories created by the first committee as well as with the benchmarks it created and tried its best to surmount their limitations with clear and reasonable performance indicators.

The benchmarks suffer from two major limitations. First, a large number are unmeasurable because they are process-oriented or broad and/or pretentious objectives such as "identify the origin and evolution of language, vocabulary, and communication for diverse cultures," or "explore how language is used to present differing perspectives," or "analyze why cultural interactions have evolved over generations." Therefore, when benchmarks seem to increase in complexity, often what is expected of students is unbelievable as well as unmeasurable (e.g., "use print and non-print sources to apply and evaluate options to solve problems and to help meet the challenges of life"). Second, they appear in ten categories, many of which contain repetitious material, or are not based on any body of knowledge, or are all over the place in their effort to combine reading and listening, or speaking and writing. Several categories (e.g., "students will appreciate and respect their own language, culture, and literature, and will learn about the languages, cultures, and literature of others") are highly pretentious in an attempt to address matters of language and culture. Several other categories are not meaningful (e.g., "students will understand and use language arts for communication").

New Mexico should revise its standards for the English language arts and reading by scrapping the original organizing scheme of ten categories and their benchmarks, developing a scheme based on recognized bodies of scholarship or research, and using only measurable and meaningful performance indicators, with examples keyed to each one to make their meaning clear to teachers and the public. It also needs to incorporate into its standards, benchmarks, or performance indicators some literary and cultural specifics, such as core authors, titles, literary periods, and literary traditions, with reading and literary expectations geared to specific reading levels, in order to assure its citizens that its public schools have the potential to develop a new generation capable of maintaining this country's civic culture—its basic political principles, institutions, and processes—through knowledge of the history of its literary and intellectual culture.

History

The state supplied no evidence that its standards have been revised since 1998.

Geography

The state supplied no evidence that its standards have been revised since 1998.

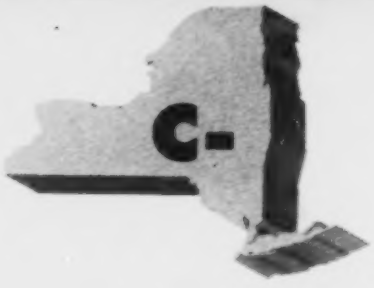
Math

The state supplied no evidence that its standards have been revised since 1998.

Science

The state supplied no evidence that its standards have been revised since 1998. ■

New York



Report Card	1998	2000
English	C	C
History	F	D
Geography	F	D
Math	B	B
Science	C	C
Cum. GPA	1.40	1.80
Overall Grade	D+	C-

English

This review covers the July 1998 document, which is a great improvement in several respects over earlier versions. The present document lists standards in grade spans of two grades from pre-K to grade 8, and a single grade span from 9 to 12, thus providing more detail in the early grades. Even though it has retained its original framework of four general language function/language process-oriented standards, it lists separate objectives for each language process in subsections so that they are not all muddled together as they were in the earlier versions. Nevertheless, it is still a somewhat confusing document to read in that one must look under all four general standards to find all the objectives for each language process.

The present document retains the strengths of the earlier documents; for the most part, its standards are clear, specific, measurable, and comprehensive in almost all areas. It also expects students to speak and write in Standard English. However, it still suffers from some anti-literary requirements or expectations (e.g., that literary response "should be connected to the individual's prior knowledge and experience"). More serious, it still lacks literary and cultural specifics to indicate expected levels of reading difficulty or expected literary knowledge; the present standards could be set in any English-speaking country in the world. There is no mention that students are even to study American literature. The document would be considerably strengthened by an organizational scheme based on coherent bodies of research or scholarship, more specificity for vocabulary objectives at various grade levels, a delineation of standards for grades 9 and 10 as well as 11 and 12 (a single set for 9-12 covers too much intellectual territory), and such literary and cultural specifics as key authors, works, literary traditions, and literary periods to make clear its academic expectations for students' reading level at different educational levels as well as their knowledge of the nature and history of this country's literary and civic culture.

History

This is a combined review of New York's standards and its *Resource Guide*. Without the latter document providing quite a bit of information on content specifics, the standards would drop some 10 to 15 points. If parents do not have both documents they may be confused as to what is expected of their children. There is evidence that the standards were drawn from the much-criticized *National History Standards*. The *Resource Guide*, however, seems almost oblivious to the existence of the national document. Linking the content presented in the *Resource Guide* to the standards document would have been extremely useful for parents and teachers, but neither document alone satisfies the need for high-quality, user-friendly, and solid history standards. Technically, a careful and knowledgeable reader can piece the basic content for a first-rate history program together. However, criteria for this review are not only focused on sufficient content; the document(s) must also be clear, understandable, well organized, and ultimately helpful

for all users. The information here is simply too scattered and incoherent in many places.

There is also some evidence of manipulation of children throughout the standards, but much less so in the *Resource Guide*. For example, reliance on the "Three Worlds Meet" theory as the only explanation for the beginnings of America is problematic. While some 20th century sensibilities may wish it so, the historical record does not sustain the notion that Europeans, Indians, and Africans shared equally in the beginnings of America. Additionally, rather than objectively exploring events, students are directed to potentially political conclusions regarding the "forced relocation of Native American Indians and the internment of Japanese Americans during World War II" (Standard 1, Intermediate, 2).

Geography

New York receives a D with a score of 58, an increase of 18 points since 1998's review. The draft resource guide adds some welcome detail to the standards but it turns into a list at the high school level. Even so, emphasis on a new two-year geography course in high school helps increase scores. General characteristics score well except in the area of benchmarks. Comprehensiveness and rigor regarding K-4 is uneven. While the standards are not particularly comprehensive (even while being overly broad), they are often very rigorous. Middle school (grades 5-8) scores are better than in earlier grades. Considerable geography learning is required in grade 5's United States, Canada, and Latin America course. Unfortunately, grade 6's Eastern Hemisphere material is often too broad. Grade 7-8's chronologically based course appears to be highly detailed, with superior geography content making the middle-school scores on our evaluation much higher than in 1998.

The Resource Guide loses its specificity in high school and goes to an outline form. Further detail is offered in the Connections columns that suggests student activities and poses open-ended questions. But there are no benchmarks and the material is very vague.

Math

The *Mathematics Resource Guide With Core Curriculum* (1999) contains the same Core Curriculum text as the 1996 original, which was reviewed in 1998, but with some differences. The 1996 standards were combined into a pamphlet with standards for science and for technology, not included in the present edition. On the other hand, the present *Resource Guide* repackages the "Key Ideas" and "Performance Indicators" according to the more refined grade levels K-2, 3-4, 5-6, 7-8, and two levels for the high school, labeled A and B because of the names "Math A" and "Math B" for certain new statewide examinations on the material. The largest part of the present edition is devoted to examples and pedagogical material, not much of which appeared in the earlier edition. Though the "Core Curriculum" text has not changed, the new material adds to clarity, compared with the 1996 version, but by the same token detracts from Content and Reason, because it is now clearer how thin the implied curriculum is in these regards. For example, under "Reason" at the Exam B level, there are exactly two Indicators, both about deductive reasoning (including "direct proofs" and "indirect proofs" in Euclidean geometry), but the associated "Classroom Ideas" indicate that these Indicators sound more ambitious than the State intends them in practice.

Science

New York presents a puzzling picture to the reviewer. In the document reviewed in 1998, entitled *Learning Standards for Mathematics, Science, and Technology*, the science standards were generally satisfactory (barring some errors) within the limits imposed by their brevity. Unfortunately, they were seriously marred by a set of examples, attached to the individual standards, that were far too often irrelevant, misleading, or simply incorrect.

The same standards have now been incorporated into a new *Mathematics, Science & Technology Resource Guide*. The standards are little changed but the format is different and the examples are entirely new. Unfortunately, the new examples suffer from all the faults of the old ones.

On account of the brevity of the standards document, a lot is left out. Evolution is mentioned just once, at the Commencement level; the history of life on Earth is essentially ignored and the word *fossil* is never mentioned. Molecular genetics gets only the slightest passing mention, energy is never defined, 20th century astronomy is nearly ignored, plate tectonics is merely hinted at, and most of classical physics is pretty well finessed.

The New York State Education Department is apparently aware of

these shortcomings and is preparing a series of Core Curriculum addenda that flesh out the standards. The two I have seen, one concerned with Intermediate Level Science and the other with Earth Science, are quite detailed, quite well written, and go a long way to ameliorate the shortcomings of the earlier documents. However, it is not possible to tell much on the basis of just these two addenda. It is reasonable to hope that the end result will be a set of usable standards. Ultimately, the whole should be rewritten as a single document so as to make clear what is expected of students. ■

North Carolina

Report Card	1998	2000
English	-	B
History	F	D
Geography	C	C
Math	A	A
Science	-	A
Cum. GPA	2.00	2.80
Overall Grade	C	B-

English

This review is based on the standards set forth in the January and February 1999 document. Overall, these are good standards; for the most part, they are clear, specific, and measurable, showing increasing difficulty over the grades, and they satisfactorily address all areas of the English language arts and reading. In particular, the research, conventions, and reading strands are strong, with clear objectives throughout for vocabulary and reading comprehension skills. Further, the document expects students to use Standard English orally and in writing, and seems to expect systematic phonics instruction. Finally, North Carolina's document is one of the few that expects the study of "world, American, and British literature," specifying literary periods as well.

Still, North Carolina's standards could be strengthened in several ways. It could do so by using a more coherent and consistent organizing scheme throughout the grade levels, with fewer but better integrated subsets in each strand. It could further improve its literature standards by avoiding misuse of the concepts of "culture" and "representativeness," by eliminating anti-literary expectations or requirements such as asking students throughout the grades to connect literature to their personal experiences or to use literary study to appreciate the "complexity of world issues," and by making clearer what level of reading difficulty is expected in the high school years.

History

North Carolina's standards are directly tied to standards produced by the National Council for the Social Studies. (NCSS's "10 thematic strands" are not history-based and subsequently not content-specific.) While other state standards have managed to add and embellish this model for history applications, North Carolina's standards do not advance history in any meaningful way. Missing are such essential requirements as studying important events and dates, significant individuals, and central turning points. As such, these standards do not specify what teachers must teach or what students should be learning. Without specifics, viable assessments (ensuring accountability) are not possible.

Geography

The state supplied no evidence that its standards have been revised since 1998.

Math

The new edition of North Carolina's standards is much like its predecessor, which was one of the best, and though now slightly degraded it is still one of the best. The main demerits concern, under False Doctrine, a new enthusiasm for calculators—e.g., in teaching matrix inversion by machine only, solving linear systems with an inverse button. Better to omit the whole subject of matrix algebra, and prepare the way for a proper treatment with a detailed analysis of equations in two and three variables. Algebra II asks that the binomial theorem be taught "via Pascal's triangle," which also can be a mechanical device of no intellectual value. A proper attention to Reason would teach Pascal's tri-

angle "via the binomial theorem." The high school geometry is more deductive than asked by most other states but still slights "ruler and compass" construction. There is some vagueness in the language. "Find the probability of independent and dependent events" with no further detail is insufficient guidance. There are new high school courses described—e.g., "discrete math" and "advanced math"—but the standards do not indicate how much of all this is standard, how much for the "college-intending," and how much is at the "honors" level.

Science

The document reviewed here is *Science: Standard Course of Study and Grade Level Competencies, K-12* (final draft, 1999). It supersedes a 1994 version that was not available for review in 1998. In any case, the new document is completely different.

The standards are specified grade by grade from kindergarten through grade 8 and then by broad disciplines ("strands") for grades 9-12. Grades K-5 and 6-8 are considered as clusters as well. The introduction is a fine overview of the nature of science, the role of science in relation to technology and to society as a whole, and to other kinds of knowledge. It is comparable in aim and quality to the fine exposition in the *California Science Framework*. At each grade level, these generalities are focused on the abilities and needs of the students at that level in a set of short introductory essays that do much to tie the small items that follow into a cogent logical and pedagogical structure.

The individual standards are relatively few in number, carefully organized, and tersely worded. Most important, they were obviously written by people who really understood the sciences with which they were concerned. For the most part, concepts are introduced at levels where they are appropriate though challenging.

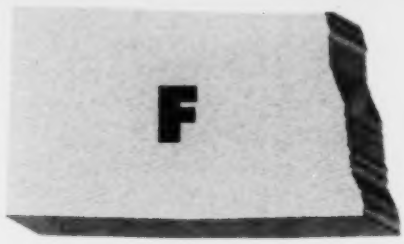
Rare among Southern states, North Carolina introduces evolution unabashedly as a seamless history beginning with the origin of the universe and progressing through the formation of the solar system, the Earth, and the biosphere. Some of the elements of this discourse are introduced earlier, but the "big picture" is presented beginning at grade 8 and continuing thereafter. In the grades 9-12 Biology strand, the scientific terms *theory* and *law* are carefully defined, and the following passage is quoted from *NSES*:

> Explanations of how the natural world changes based on myths, personal beliefs, religious values, mystical inspiration, superstition, or authority may be personally useful and socially relevant, but they are not scientific.

Laboratory work is stressed, particularly in the middle and upper grades. Modern astronomy, though a bit thin, is given a more thorough treatment than in most state standards—at least at the grades 9-12 level. The Physical Science and Physics strands are unusually accurate and complete. Although there is no explicit use of mathematics (as there well might be!), the basic areas of kinematics and dynamics are carefully covered, including the oft-neglected concepts of impulse and momentum.

All in all, the North Carolina *Science Standard Course of Study* stands as a model for other states. Students whose learning proceeds according to these standards will graduate from high school with a fine understanding of science.

North Dakota



Report Card	1998	2000
English	-	F
History	-	F
Geography	F	F
Math	D	D
Science	F	F
Cum. GPA	0.33	0.20
Overall Grade	F	F

English

This review is based on the 1996 standards document. This document has many useful examples or details to illustrate what might be intended by a benchmark, but the benchmarks themselves are intellectually impoverished. As a result, the standards do not adequately address any of the areas of study in the English language arts and reading. Their organization is also deficient; the organizing scheme is not coherent and the strands are not all labeled in an informative manner. The most serious deficiency lies in the quality of the standards themselves; they tend to be vague or broad, process-oriented, or expressions of dogma. They are mostly unmeasurable and show little progression in difficulty through the grades. The document also suffers from anti-literary expectations or requirements. Although this document may not have been intended to serve as the basis for statewide assessments, it could have served as a guide for local school districts to what academic standards are and what content local school districts should aim to teach all North Dakota students in the English language arts and reading.

History

The North Dakota expectations are based on nine broad standards that are further explained by "benchmarks," "examples of specific knowledge," and "examples of activities." These standards use the terms "understand" and "know" as central features. While the introduction explains and attempts to justify the use of these ambiguous and inherently unmeasurable terms, the fact remains that these standards are vague, nonspecific, and not amenable to assessment. The claim of "flexibility" does not wash here. If the definition of "to understand" or "to know" is left to teachers and students to decipher, these "standards" cannot possibly function as a basis for holding teachers and students accountable. There is a single book noted here; it is suggested that children "read and discuss *Knot on a Rope* by Bill Martin, Jr." No slight to Mr. Martin, but the listing of this solitary book sums the North Dakota effort; it just doesn't go very far!

Geography

North Dakota receives an F with a score of 36, an increase of 21 points since 1998. The higher score reflects an increase in coverage. The standards do not yet have a voice, however. That is, they lack the coherence of design necessary to inform students, teachers, and parents of what needs to be learned when, and why.

The state has one geography standard among nine social-studies standards. Six so-called benchmarks for grades K-4, five for grades 5-8, and three for grades 9-12 are taken, for the most part, from the content areas found in the National Geography Standards. Yet their presentation is neither measurable nor specific. There is little effort made to identify what it is students should know; thus, the benchmarks look like catch-all lists. None of this material is presented in a measurable way. Indeed, the document states that "the decision about how to assess the knowledge described in these standards and benchmarks is left to teachers and districts." Nor are the standards demanding. Much

of the material covered by grade 5-8's benchmarks should be learned in grades K-4.

Math

This "Third draft in progress" of the *Mathematics Standards and Benchmarks* is notable for its vagueness and repetitiveness, e.g., "4.4.3: Apply a variety of techniques, tools, and formulas to determine measurements" (page 19, K-4) is also repeated verbatim for high school (12.4.2, page 41). Fortunately, "... states and local districts must make their own interpretations of local needs for high-quality mathematics education," and it might be that local districts will in fact make good curricula out of some of the more ambitious words of this document, while ignoring the questionable enthusiasm for manipulatives at all levels, "algebra" in the first few grades, and other curiosities dictated by the rigid system of rubrics used throughout. "Computational algorithms for ... fractions and decimals" at grades K-4 is another ambitious generality, probably implying more than is really intended at that level, especially as to decimal fractions.

Mathematical Reason is rarely found; the words "proof" and "theorem" are unmentioned, except sometimes inferentially, as in (page 38, 12.2.8), "Generate geometric conjectures inductively and validate them deductively," which, like so much in the high school benchmarks, might represent a lot or very little. Mentioned are "chaos," "fractals," "convergence of sequences," but not the quadratic formula. The "examples and activities" accompanying the benchmarks are sometimes helpful clarifications. The glossary, the use of which is unclear, should be edited by a mathematician.

Science

The *North Dakota Science Standards* (Draft In Progress, Spring 1999) employs grade clusters K-4, 5-8, and 9-12. Each standard is followed by three lists: Benchmarks, Examples of Specific Knowledge that Supports the Benchmarks, and Examples of Activities that Support the Standards and Benchmarks.

The *Standards* have some strong points. The individual standards are generally clear if not very specific. Stress is placed on health issues seen from a scientific point of view. Some of the basic ideas of evolution are introduced as early as the K-4 level. Some mention is made of extra-solar-system astronomy, though not as much as is warranted by the importance of the subject. The use of mathematics for analysis and writing for communication is specified in grades 5-8 and 9-12.

But there are serious flaws. Many of the Examples of Activities are irrelevant, vapid, confusing, or simply misleading. Syntactical monstrosities are not rare. The treatment of evolution begun at K-4 under Life Science mysteriously shrinks thereafter. In grades 9-12, for instance, evolution does not appear at all in the Benchmarks, and appears in the Specific Knowledge section in a nearly useless condensation:

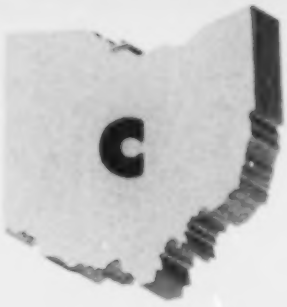
> DNA, RNA, mutations, DNA analysis, mitosis, meiosis, Mendelian genetics, genetic engineering, cloning, mutation [*again!*], adaptation, theories [sic] of evolution.

What can anyone make of this? Curiously, evolution is stressed under the heading Earth and Space Science.

The basic concepts of physics and chemistry are treated only in a vague and general way; one passing mention is made of balancing chemical equations and there is no genuine treatment of dynamics. The greatest shortcoming, however, is the very low level of expectation of what students can do, especially at the 9-12 level. For example, high school students are to study isotopes by putting beans in bags; their understanding of electric circuits is limited to a study of strings of Christmas lights—activities better suited to fourth and sixth grades respectively.

Those who expect little of students will realize their expectations. The *North Dakota Science Standards* do little to help the child in his or her quest to become an educated adult. ■

Ohio



Report Card	1998	2000
English	F	D
History	*D*	*D*
Geography	*D*	*D*
Math	*A*	*A*
Science	-	B
Cum. GPA	1.50	2.00
Overall Grade	C-	C

English

Overall, the performance objectives in Ohio's 1996 standards document are fairly strong, especially for writing and for language conventions in writing and speaking. But a large number of standards are neither clear nor measurable. The document needs strengthening in a number of ways. It should eliminate jargon and cryptic statements. It also needs to end its suggestion that students bring other languages to the English language arts classroom as well as its narrow, dogmatic approach to beginning reading. Details need to be spelled out for systematic word study at all grade levels, as well as for the study of the history and nature of the English language. Above all, the document needs to spell out some cultural and literary specifics in its standards, such as key authors, works, literary periods, and literary traditions, to make clear its academic expectations for students' reading levels at different educational levels as well as their knowledge of the nature and history of this country's literary and civic culture. At the same time, it needs to eliminate the anti-literary and anti-academic thrust of many objectives, comments, or activities, which serves to counter the strength of its positive learning objectives.

History

The state supplied no evidence that its standards have been revised since 1998.

Geography

The state supplied no evidence that its standards have been revised since 1998.

Math

The state supplied no evidence that its standards have been revised since 1998.

Science

Science: Ohio's Model Competency-Based Program (revised 1996) is an extensive 138-page book, of which about 30 pages are devoted explicitly to standards and performance objectives. The latter material is arranged in tabular form, grade by grade, from pre-K through grade 12. For each grade level, there are four columns: Scientific Inquiry, Scientific Knowledge, Conditions for Learning Science, and Applications for Science Learning. These are followed by a set of Performance Objectives. Explicitly stated is the principle, "[T]he nature of instruction is generally conceptual below grade 9 and more quantitative and abstract in grades 9-12."

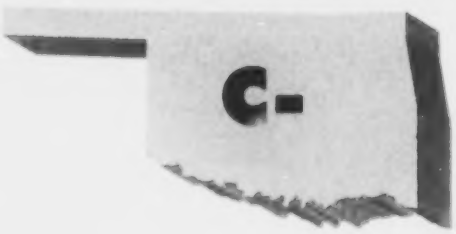
Impressively, quantitative study of science is introduced at grade 3. As students progress, the themes initiated at the lower grades are steadily elaborated. At grade 6, for example, "[T]he learner will apply appropriate mathematical operations to make mental estimates of the reasonableness of measures of everyday observations and events" and will maintain a journal. As these general principles are elaborated, there is increasing attention to specifics of the various sciences. At grade 8, the student is introduced to large-scale systems and processes: the periodic table, the Linnaean system, and the Hertzsprung-Russell diagram, and to natural selection

and speciation, stellar evolution, and plate tectonics. Particularly strong (and accurate) is the development of historical studies of science.

All these favorable things having been said, the Ohio standards are thin on specifics such as Newton's laws, Mendel's laws, the details of the solar system, or the role of plate tectonics in earthquakes, orogenesis, and continental drift. This may be intentional; given a corps of skilled teachers armed with good textbooks, such details may readily follow from the generalities in which the standards are so strong. However, it may not be easy for interested persons who are not experts to know just what is being set forth. Similarly, the stress on mathematical analysis and written communication is excellent, but never made specific.

On the whole, *Science: Ohio's Model Competency-Based Program* is a fine basis for learning but could well use a companion document devoted to detail, especially with respect to evaluation of competency. ■

Oklahoma



Report Card	1998	2000
English	C	D
History	D	B
Geography	F	C
Math	F	B
Science	-	F
Cum. GPA	0.75	1.80
Overall Grade	D-	C-

English

This review is based on a new draft of Oklahoma's standards, dated April 1999. This is apparently not a finished document. It contains a new section on reading for grades K-12, but other strands haven't been worked out in similar fashion. There are short descriptive sections for the other strands, and then material entitled "program skills" from the 1993 document. It is a confusing document to evaluate in its present state of development because "program skills" also address grades K-12 and cover in broad statements much of what is in the new section on reading. Moreover, the five major "program skills" have no clear and explicit connection to the objectives/standards listed below them for each grade or grade span.

This draft does have some strong features. The Overview makes the use of "decodable stories" explicit, suggesting that there will be systematic phonics instruction. The reading strand contains a good set of vocabulary objectives, and research processes are covered well. For the most part, the standards or objectives are clear, specific, and measurable, and in "program skills" there are good examples of progressive expectations from one educational level to another. The document is also reasonably free from anti-literary expectations or requirements. When completed, one hopes the document will provide a single coherent set of strands and subcategories, with objectives or standards explicitly connected to the program skills, if these are to be retained. The document also needs to provide some literary and cultural specifics, such as literary periods, traditions, authors, or titles. Without any required authors or titles, or specified reading levels expected at different grade levels, or sample reading passages, especially at the high school level, it is not clear that Oklahoma's standards can lead to a common and high set of academic expectations for all its students and assure its citizens that its schools can develop educated citizens capable of maintaining this country's civic culture.

History

The Oklahoma "core curriculum" applies the "ten instructional themes" approach as promoted by the National Council for the Social Studies. While this approach demotes history instruction to a single theme, there is nonetheless a lot of history contained in this suggested curriculum. There is even some history instruction for grades K-4, though it is not organized in any coherent fashion, nor is it used later in the higher grades. There is no evidence that political and social dogma will not be tolerated, nor are there any specific skills to reduce manipulation of student feelings and attitudes. Historical skills in general are not tied to specific content. The history presented in the "core curriculum" is scattered and, as such, difficult to follow.

Geography

Oklahoma receives a C with a score of 62, an increase of 26 points since 1998. These completely revised standards, while acknowledging core content areas, have a social-studies thematic feel

to them in early grades. Standards are presented grade by grade for grades 1-5, for grades 6-8 World Geography, and for grades 9-12 World Geography. No obvious geography model was used to develop the standards.

Generally, these standards employ strong verbs, giving the material an appearance of measurability. But there are no benchmarks, so actual measurement would be difficult.

Elementary standards are strongest when focused on geography's fundamentals. Mental maps are included and the old-fashioned idea of knowing state capitals is emphasized. Longitude and latitude are introduced in third grade. In middle grades, scores rise because geography is actually taught as geography. There is new emphasis on human systems. Physical systems receive relatively good attention, unusual in a social-studies environment. High school standards score ever better. Human systems, environment and society, and applications score particularly well, followed by skills, physical systems, places and regions, and fundamentals.

A nice touch is the inclusion of a list of suggested materials for classroom use in the elementary grades. A short glossary, in which almost all the words are geographic terms, is found at the end of the material.

Math

The current April 1999 draft of Oklahoma's *Priority Academic Student Skills* ("PASS") is a great improvement over the 1997 version, but the improvement is not uniform across our four criteria. Most of the unimportant jargon has now disappeared, the writing is tighter, more controlled, and less ambiguous in most places. The glossary is also much better than most, though it remains a mystery why any state would wish to publish a two-page glossary at all. The really serious disappointment is that Oklahoma has done nothing to improve its less-than-mediocre Content demands at the high school level and little to increase its attention to Reason at any level.

Though the content demands at the elementary levels are traditional and well stated, the three exit-level courses, misnamed Algebra I and II and Geometry (they actually represent stages in an "integrated" program) are very thin stuff indeed. Geometry is without theorems or proofs; algebra is without quotients or polynomials; and most elementary functions are to be studied via "technology" only.

The high grade of B earned by this document is itself a good example of the dangers of using an average as the sole measure of the data. What's good in these standards is good but what's weak is very, very weak.

Science

The Oklahoma *Priority Academic Student Skills: Science, Grades 1-12* (Draft of April 1999) is supplemented by a similar document that covers expectations for kindergarten. The main document addresses the grade clusters 1-3, 4-5, 6-8, and 9-12.

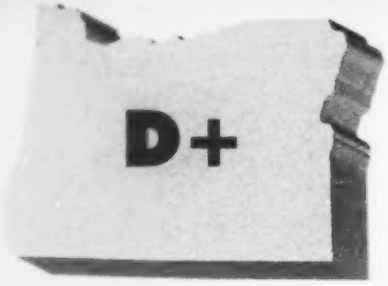
The standards are relatively brief and straightforward. Explicit use of mathematics and writing for scientific purposes is introduced in grades 9-12. At that level, physics and chemistry are treated with a superficiality that will not support real learning. For instance, nothing is said about chemical equations or quantitative analysis of motion, and energy (as is too often the case) is never really defined. Plate tectonics and the evolution of stars are mentioned briefly. There is little or no discussion of technology or of its relation to science.

Oklahoma seems to have a "don't ask, don't tell" policy with regard to evolution. That is, all of the elements of evolution theory are presented individually, but they are never pulled together and the naughty word *evolution* is never used. Given the essential role of honesty in science, this type of hypocrisy does damage to the process of teaching young people what science is all about.

In November 1999, the Oklahoma State Textbook Committee directed that a statement be printed in all science textbooks, copying the ignorant Alabama disclaimer, which (among other gaffes) falsely calls evolution "a controversial theory," misuses the term theory itself in its nonscientific sense of speculation, and states incorrectly that science can be done only on objects that are directly observable.

A mediocre and marginally useful set of standards is thus rendered worse than useless for the scientific development of Oklahoma's young people. ■

Oregon



Report Card	1998	2000
English	F	F
History	-	B
Geography	-	F
Math	D	D
Science	C	B
Cum. GPA	1.00	1.40
Overall Grade	D	D+

English

This review covers Oregon's standards document, put out in January 1997, and a large number of documents containing test specifications and sample tests for its state assessments in reading, literature, and writing. The standards document itself is quite confusing to read, despite a coherent set of organizing strands. It has curriculum goals and content standards, as well as benchmarks; all it needs are standards and benchmarks. The document is also quite underdeveloped; there are no benchmarks for many standards, and even when there are, they often show little increase in complexity over the grades (as in the reading strand). Disciplinary coverage is extremely weak in several areas. In addition to nothing on the history and nature of the English language, there are no literary and cultural specifics to suggest what country these standards are set in—not even a requirement that students study American literature.

Oregon's state assessments may well address many of the limitations in its standards document, to judge from its test specifications and sample tests for writing in particular. They supply expectations for grammar and writing that could be incorporated into the standards document itself. However, although test specifications for reading and literature indicate the general categories they will cover, there is no way to know how rigorous these tests are because of the paucity of details indicating increases in complexity through the grades. Much depends on the level of difficulty of the passages selected. Rubrics set forth in state assessments, as good as they may be, do not compensate for lack of details in real standards; teachers need a better guide for their K-12 curricula in the English language arts.

History

The *Oregon Standards* are quite unique. Rather than repeating history in cycles, which has long been the successful pattern of U.S. schools, the *Standards* spread American and world history across the grades from fifth grade through high school. The younger kids get the beginnings of U.S. history (and ancient history) with the chronology advancing as children get older. While this pattern appears sensible (to avoid repetition), it would seem that the real value of studying history would not be well learned by students. That is, history at its best (for young people) is a story. It has beginnings, middles, and ends. What is assumed in Oregon is that, through instruction (in grades 5-12), students will retain the knowledge necessary to continue "building understandings" about the history. This model, however, is seriously flawed when applied to young evolving minds. For example, a 10-year-old's understanding of the Declaration of Independence cannot be matched by a 17-year-old's maturity and greater depth of understanding and knowledge. In effect, this one-shot-at-history approach defeats any notion of greater understanding and appreciation of the past, the complexity of history, and the required discipline to study the past. Despite this approach (which does not actually result in points lost or gained), the Oregon *Standards* do pass muster on most criteria.

Geography

Oregon receives an F with a score of 42. This draft needs considerable attention before it will be useful to parents, teachers, and students. It uses unexplained jargon and its layout is confounding. Geography standards and benchmarks are few and very general. Standards for grades 5, 8, and 10 are elaborated upon in another section called "Eligible Content," which has to do with assessment, but the version presented in the standards section itself is weak and abbreviated.

The standards document introduces geography by asking students to "understand and use geographic skills and concepts to interpret contemporary and historical issues." This statement is followed by 14 (unnumbered) Common Curriculum Goals that, while broad, generally follow the outline of the National Geography Standards' content areas.

These curriculum goals are followed by four content standards with benchmarks indicated for grade 3, 5, 8, "CIM/Grade10," "CAM/12," and "PASS Criteria." (Explanations for these last three items were not found.) It is here, within the benchmarks, that specificity is needed but is unfortunately absent on the standards pages. The grain of specificity is essentially the same throughout all the material, meaning that benchmarks are no more measurable than the curriculum goals. Almost all the goals, standards and benchmarks have the same weight. Furthermore, some benchmarks lack flow and coherence. In addition, the standards have a repetitive quality that tends to limit the subject matter.

Standards for elementary grades are weak throughout. Learning of basic vocabulary is not evident until fifth grade. Middle grades score better: we find relative location addressed as an assessment possibility, for instance. High school standards are mediocre, however. They ask students to employ critical thinking without evidence of having exposed students to many facts. The content area regarding physical systems is not addressed at all in the standards.

Following the standards, the document contains a hodge-podge of material. In a chapter called Curriculum and Instruction, multiple resources are listed for teachers to call upon for help in K-12 history, civics, and economics but only one, for grades K-3, is listed for geography. This chapter is followed by the Eligible Content chapter mentioned earlier, which describes "areas from which state assessment items may be drawn."

Another chapter singles out some twelfth-grade benchmarks to be "taught through contextual study." And some K-12 social-studies curriculum models are suggested.

Math

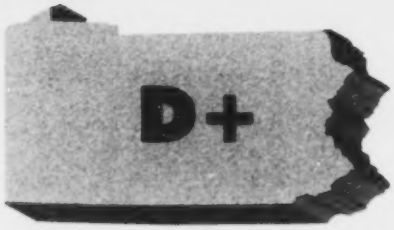
The only strength in the *Content Standards* (March 1998) is its overall lack of jargon. It does not attempt to dictate pedagogy, or to say that students should "explore" something, but instead tries to say straight out what the student is supposed to be able to perform at each of the numbered grade-levels (3, 5, 8, 10, and 12). However, it fails to do so. (Nor does a second document, called *Performance Standards*, which was sent to us at the same time.) The *Content Standards* are vague and repetitious, and where the vagueness can be penetrated they ask very little substantive knowledge from the student. "Repetitious" is more than just a matter of prose style. For example, on page 4, under "number theory," in grade 5 we have "recognize primes less than 100"; at grade 8 "identify prime numbers less than 100"; and at grade 10 "multiples and least common multiple," and "prime numbers and prime factorization." Little progress here. High school geometry asks no deduction, algebra is thin, and by grade 8 the only fractions to be added are those whose denominators are 2, 4, 8, or 16. These standards cannot be used to construct meaningful statewide examinations, or to select textbooks with any consistency.

Science

Teaching & Learning to Standards: Science (September 1999) is a teacher's resource guide that incorporates content standards. These standards are a modest rewrite of those reviewed in 1998. A few standards have been shifted to higher or lower grade levels, a considerable number have been expanded, and some new ones have been added. The overall result is a modest improvement in the quality and utility of the whole.

■

Pennsylvania



Report Card	1998	2000
English	-	C
History	*F*	*F*
Geography	-	-
Math	D	C
Science	-	-
Cum. GPA	0.50	1.33
Overall Grade	D-	D+

English

The January 1999 document is the final version approved by the Pennsylvania State Board of Education. It is vastly superior to the first version (which I had critiqued earlier at the Department of Education's request); almost all of the current standards are clear, specific, and measurable, organizing strands reflect coherent bodies of research or scholarship, and the document addresses almost all of the different areas in the English language arts and reading well, especially in the research strand, and in most areas there are regular increases through the years in intellectual difficulty.

However, there are some important limitations in this document. It is not at all clear that phonics will be taught explicitly and systematically, and an analytical approach to the structure or grammar of English language conventions is missing. Most serious is an underdeveloped literature strand. There are no literary or cultural specifics at all; i.e., no mention of specific literary traditions or periods in American and British literary history, no mention of American literature at all as a body of literary works, never mind some major themes, core authors, or works in American literary history. As a result, without any suggested or required reading levels, or suggested or required titles or authors, or sample reading passages in the standards themselves, it is not clear how these standards can lead to common and high academic expectations for Pennsylvania students.

History

The state supplied no evidence that its standards have been revised since 1998.

Geography

Pennsylvania receives an incomplete. It did not submit geography standards for review.

Math

This document is essentially the same as the 1997 draft evaluated in 1998, with some correction of error and slight improvement. It scores well on good prose, but is vague. The implied content does include some demanding items, but is also diluted by too many rubrics (the "mile-wide curriculum"), too much statistics and data handling in the early grades, excessive instruction in calculators and manipulatives, and demands for student "exploration." Such things are not "standards." The section on Mathematical Reasoning shows little attachment to the curriculum, though good intentions. There is some inflation (or vagueness) in such instructions as, "Use patterns, sequences and series to solve routine and non-routine problems." The demand for matrix algebra by grade 11 and, "Use equations to represent curves (e.g., lines, circles, ellipses, parabolas, hyperbolas)" also by Grade 11, might be overly ambitious or might represent the trivial; detail is missing. Where definite enough to be judged, the document as a whole indicates too little content, and too late. The glossary, which takes up about 10 of the 29 pages in this document, is unnecessary and not well written, though it has corrected some errors of the previous version.

Science

Pennsylvania is revising its science standards. Hence no official version was suitable for review at this time.

■

Rhode Island

Report Card	1998	2000
English	-	F
History	-	-
Geography	-	-
Math	*F*	*F*
Science	*A*	*A*
Cum. GPA	2.00	1.33
Overall Grade	C	D+

English

This review addresses the standards document released in 1996. This document suffers from many limitations, chiefly because those writing it were apparently heavily committed to a process-oriented and peer- and self-centered mode of learning. In many places, the document borders on solipsism. Except for the research strand, most standards are not standards but vague, unmeasurable goals. In addition, most areas are poorly addressed by what the document does offer as standards; there is barely a difference between what is expected in the primary grades and what is expected by graduation from high school. Although the introduction refers to a "common body of knowledge shared by all literate Americans," the document in no way specifies this body of knowledge in the English class. It is not even clear that much literature is to be read; the focus of the standards seems to be the "content areas," not literature. Indeed, the word "literature" does not seem to appear once in these standards.

Rhode Island's schools, teachers, and students deserve a document that contains real standards and reasonable coverage of the major subdisciplines in the English language arts. The state needs to reconceptualize and completely revise this document if it is to have a meaningful set of English language arts/reading standards.

History

Rhode Island receives an incomplete. It did not submit history standards for review.

Geography

Rhode Island is not developing geography standards and is encouraging school districts to consult *Geography for Life*, the national geography standards.

Math

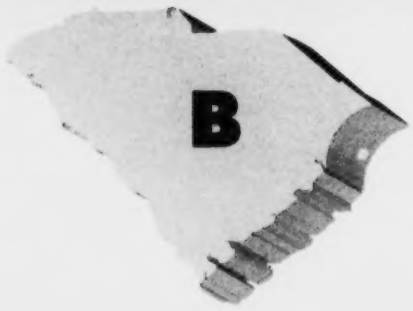
The state supplied no evidence that its standards have been revised since 1998.

Science

The state supplied no evidence that its standards have been revised since 1998.

■

South Carolina



Report Card	1998	2000
English	-	B
History	-	C
Geography	-	A
Math	D	B
Science	D	B
Cum. GPA	1.00	3.00
Overall Grade	D	B

English

This review is based on the 1998 document, overall a strong one with many commendable features. It has a coherent organizational scheme and for the most part its standards are clear, specific, and measurable. The standards address almost all areas of the English language arts and reading quite satisfactorily; indeed, its research strand is one of the best. The document expects all students to demonstrate Standard English orally and in writing, and it seems to expect systematic phonics instruction (although this is not as clear as it might be). The reading strand contains strong vocabulary objectives through grade 8, and the literature strand commendably expects students to learn key literary periods, themes, and archetypal characters in American and British literature, in addition to selected texts from classical, contemporary, and world literature. Literary elements and techniques are extremely well laid out, with well-developed poetry and drama objectives in the high school grades.

However, South Carolina's standards could be strengthened in several ways. There should be specific vocabulary objectives in grades 9-12 and the excessive number of objectives should be reduced, especially the unmeasurable ones. Above all, the standards should contain some sample reading passages, suggested or required reading levels, or suggested or required titles or authors (or all three) in the high school grades in particular, if South Carolina seeks to ensure common and high academic expectations for all its young people.

History

The South Carolina standards are based on the much-criticized National History Standards and the Standards of the National Council for the Social Studies. Adoption of NCSS theme-based studies relegates history to a diminished role; still, these standards do include quite a bit of history. What is remarkable about the history that is included, however, is that specific figures, dates, and important events are missing. At the root of "standards" is the notion that every child will be responsible for certain specific knowledge. The attempt to teach history without such specifics does not translate into useful standards for teachers, students, or parents. For example, from 8.1.16, "Identify the major issues of the early presidential administrations." To teach this standard, the instructor would certainly have to have knowledge of or be able to direct students to resources where the "major issues" could be found. But then why no simple list of "major events"? This is no minor quibble. If not mentioned, how are assessment experts (preparing the state history exams) to know which events will be taught and for which events to hold students accountable? The South Carolina Standards simply do not supply the specifics needed to prepare a *standard* curriculum for which every child and teacher will be held accountable.

Geography

South Carolina receives an A with a score of 83. Its geography standards have been well adapted from the national standards, *Geography for Life*.

This happens within a "social studies" format that has four thematic strands. Geography's strand is number III: "People, Places and Environments: Geography." The strands are followed by relatively general content standards, then an array of grade-specific standards. "Instead of grade span benchmarks like those in other frameworks," the document states, "this one contains standards for the following grades: Kindergarten, 1, 2, 3, 4, 5, 6, 7, 8, 9-10, and 11-12."

The material is nicely specific even though the standards are not elaborated upon by benchmarks, per se. The addition of benchmarks (the "e.g." or "by ..." that could narrow the grain of a grade-specific standard even further) would make this excellent material even more useful. But it is good even without benchmarks because the grade-specific standards are clearly and precisely articulated.

Standards throughout are comprehensive and rigorous. Cumulative learning builds nicely with emphasis on map and location skills in the elementary grades. Latitude and longitude, usually introduced in middle school, appear in grade 3. Strong emphasis on all content and skills areas continues into the middle grades, where the use of sophisticated technologies to solve geographic problems is stressed.

High school standards appear only in grades 9-10, when students are enrolled in global studies. But they are both sophisticated and demanding. The standards accent doing geography throughout, with learning often accomplished via skills and applications rather than rote memorization. Physical systems, so often ignored in social-studies education, receive good attention in early grades and serious attention in grades 8-10.

In addition to content standards, the state includes a chapter on process standards. There is nothing new here, as it follows the national geography standards' skills materials that focus on asking and answering geographic questions and acquiring, organizing, and analyzing geographic information.

The Framework is organized into nine chapters, including information on teaching and learning, electives, professional development, assessment, instructional materials and resources, and systemic support as well as standards. We learn that classroom assessments are to be standards-based. An appendix contains an excellent glossary. The entire document has been thoughtfully compiled so that parents and other persons will find accessibility easy.

Math

The 1998 *Curriculum Standards* is a great improvement upon its predecessors, the 1993 *Framework* and the 1995 *Standards*. The writing is much clearer, more definite and less ambiguous. Thus these *Standards* can hardly fail to be more testable also. Unnecessary jargon, too, is infrequent. The content demanded in elementary school and in junior high school, while good before, is now outstanding. Alas, the content demanded of the high schoolers remains spotty, though ambitious in spots, especially the "pre-calculus" course.

South Carolina now earns a point for Reason, but one point represents inadequate emphasis. The process of deductive reasoning is laid out, albeit briefly, on page 48. Page 53 asks for straight-edge and compass constructions, clearly deductive, but the Algebra II course would have students solve linear systems, and almost everything else, by calculator only. Nor is explicit mention made of the quadratic formula when discussing quadratic equations; here as elsewhere it is unclear how much of reasoning is intended.

We reject as False Doctrine the statement, "Calculators are to be used as a primary tool," an admonition that is repeated throughout the document. Just the same, the standards contain very concrete and unambiguous examples of what the authors have in mind, which is usually solid mathematics.

Science

The South Carolina standards are arranged by grade through grade 8 and by broad subject matter for grades 9-12. The standards for the primary grades are notable—and laudable—for the detailed expectations they set for students.

The concepts of area and perimeter are introduced at grade 2, and so are quantitative graphs. Fairly precise measurements (e.g., volume to the nearest milliliter) appear at grade 3. Volume (called "capacity") is added at grade 4, as is, somewhat incongruously, "velocity (speed)." Some substantial mathematical issues appear at grade 4 as well: rounding and conversion among fractions, decimals, percentages, and ratios. The key evolutionary concepts of ecological niche and the use of fossils to interpret Earth history also appear at this level—the latter under "Earth and Space Systems" rather than "Living Things." (Fossils as evidence of past life are first discussed explicitly at grade 7.) Grade 4 students also get their first

looks at electric circuits, at volume and shape as characteristics useful in distinguishing among the states of matter, at magnetic fields, and, perhaps most laudably of all, at the distinction between kinetic and potential energy.

The subject of energy is generally handled well. The term "heat" is never used loosely, and thus does not encourage the intuitive tendency to think of "heat" as "stuff" (e.g., caloric). Students will find this advantageous when, at a later stage, they study the conversion of heat energy into mechanical energy in heat engines (first introduced at grade 7).

Care is taken also to avoid the misconception that industrial activities affect the environment but agricultural activities do not. This is especially important in a state such as South Carolina, with its intensive and extensive agricultural enterprises.

Extra-solar-system astronomy and large-scale geological processes associated with plate tectonics are introduced seriously at grade 8, together with inquiry into the age of the Earth and the means used to ascertain it. The strong interaction between early life and the character of the atmosphere is also introduced at this level.

Also at grade 8, momentum, so often neglected, is introduced on a par with energy. Explicit reference is made to the use of mathematical equations in dealing with physical and chemical problems. This use of mathematics is substantially expanded at grades 9-12 to include not only the use of linear equations but also such essential tools as the proper use of significant digits and dimensional analysis. In general, the treatment of physics and chemistry at grades 9-12 is very thorough and systematic, and the modern component of both is quite strong.

Some key concepts of evolution having been introduced at lower grade levels, at grades 9-12 this is expanded into more thorough study. It is remarkable how thorough a job can be done without ever using the word "evolution" itself, though it cannot be said that the student is likely to acquire insight into the way that evolution functions as the central organizing principle of biology, nor into the central role of plate tectonics in geology. And certainly the seamless history whose chapters are cosmology, Earth history, and biological evolution is never pulled together.

A certain degree of disorganization crops up on occasion, as do some minor oversights. At grade 8, "voltage, ampere, and resistance" should read "voltage (potential), current, and resistance." At grades 9-12, Charles's Law and Gay-Lussac's law, which are simply two names for the same thing, are presented as separate laws.

As already mentioned, the importance of mathematical methods is made explicit. It would have been even better if similar attention had been paid to the importance of expression in written and oral English.

Without underestimating the shortchanging of the sciences of cosmology, geology, and biology on account of their essential historical content, the South Carolina *Science Curriculum Standards* do a satisfactory job of preparing the student for a life in which understanding of the sciences will be important.

Note: The author of these reviews served as a consultant at one point in the development of the South Carolina *Science Curriculum Standards.*

■

South Dakota

Report Card	1998	2000
English	-	C
History	-	C
Geography	-	C
Math	F	A
Science	-	B
Cum. GPA	0.00	2.60
Overall Grade	F	B-

English

This review addresses the December 1998 document, a document with many strengths. South Dakota's standards are based on a coherent organizing scheme; are for the most part clear, specific, and measurable; in general increase in difficulty over the grades; and satisfactorily address almost all areas of the English language arts and reading. The reading and writing strands in particular are spelled out well. Yet the document has some limitations (and a few that are puzzling) that should be addressed in further revisions. It avoids mention of the name of the language that students should be learning in their regular classes in the title of the document, it never specifies the conventions that students should use orally or in writing, and it has a very narrow educational goal—to prepare students to become "successful communicators." One would hope that South Dakota's educators and parents expect far more intellectual substance. Above all, the document lacks literary and cultural specifics (for example, the specific bodies of literature, literary periods, and traditions, or key authors or titles that citizens might expect students graduating from a U.S. high school to have studied). Furthermore, without any suggested or required titles or authors, suggested or required reading levels, or sample reading passages in the standards (or all three), especially in the high school grades, it is not clear how South Dakota's standards can lead to common and high academic expectations for all students in its schools, especially if there are no statewide assessments.

History

The *South Dakota Social Studies Standards* are grounded in state law that requires specific content in the subject areas of history, civics, geography, and economics. While there are references to the broader non-content areas and themes of the National Council for the Social Studies, there is a lot of solid history here that, if applied, would provide a sufficient historical experience for children in certain grades. One oddity with these standards, though, is that rather than the history content *improving* in the later grades (as is the case with the best history standards), the better and more specific history (especially state and United States history) is found in the upper-elementary and middle-school grades. European and world history is painfully thin and what is offered is not material that helps children to understand the past, but merely "stuff" about sundry ancient cultures and their contributions. There is absolutely no recognition of the major animator of European, world, and U.S. history, vis-à-vis Christianity, particularly the pre-Revolutionary movements that were antecedent to and critical for the foundation of the United States of America. On another issue, the standards require students to honor Martin Luther King, Jr. While it is important to honor national heroes such as Dr. King, to honor him and others without providing a context and understanding of why we hold Dr. King and others to be heroes is not acceptable. With King, for example, children must know who he was and what he accomplished within the context of the civil-rights movement. To grasp this

importance, children must also understand our nation's struggle with slavery and race relations. Good standards provide the required background and information for children to understand such things.

Geography

South Dakota receives a C with a score of 62. The state should have put its new standards through one more analysis and a thorough edit before adoption. This would have enhanced their organization and clarity and diminished the repetitiveness that makes them awkward and cumbersome. Geography standards are specified in grades K, 1, 2, 3, 4, 5, 7, and for 9-12. One social studies goal applies to geography: "Students will understand the interrelationships of people, places, and the environment" followed by a rationale on page 7. The goal is reiterated and followed by three indicators: (1) "Analyze information from geographic representation, tools, and technology to define location, place, and region," (2) "Analyze the relationships among natural environments, the movement of peoples, and the development of societies," and (3) "Analyze the impact of the Earth's natural processes, patterns, and cycles on various regions of the United States and the world."

The goals, rationale, and indicators do not appear again. Instead of using the indicators as organizers, the remaining material comes in the form of grade-specific lists. Thus the kindergarten standards (actually more like benchmarks as they are relatively specific) are presented with an opening paragraph followed by subject-specific lists prefaced by the directive, "Students will...." This works well enough in the early elementary grades when "benchmarks" are clear and fall within a category covering fundamental knowledge. But confusion begins in fourth grade and builds from there as geography becomes subsumed in history. (Either there are no specific geography standards in grades 6 or 8 at all or benchmarks are listed without any categorization other than the word: "Geography.")

A layperson looking at these standards might wonder what had influenced such a collection of disparate requests of students. Why, for example, must a seventh grader, when studying the "Western Hemisphere and Europe," identify "... factors that influence climate ..." and then "compare and contrast the distribution, growth rates, and characteristics of human populations...." How do these relate to one another? While we are told in the opening paragraph regarding grade 7 that "knowledge, skills, and perspectives are centered on ... population and cultural characteristics, landforms and climates ... migration and settlement patterns"; that "Standards 1-7 provide the foundation for understanding the Earth's physical and human systems"; and that "the five themes of geography provide the framework for studying these regions/countries," these are words that, strung together, say little more than "this is a seventh-grade geography course." (An explanation of geography's five themes does not appear anywhere in the document.)

The flawed presentation undermines the standards' overall value. Elementary standards score low. They are not particularly rigorous nor do they move beyond basic map skills. Coverage is more thorough in middle- and high-school grades and requires students to acquire considerable knowledge and skills. Knowledge regarding physical systems is complete in middle and upper grades.

Math

The opening pages of the *Content Standards* are filled with generalities and platitudes: "Students will discover, analyze, extend, and create patterns, relations, or functions to model mathematical ideas in a variety of forms" is writing at its most vague, but such things occur only in the eight introductory pages ("Goals and Indicators"), while the following 29 pages ("Mathematics Standards") make very clear what mathematics is expected of all South Dakota students, grade by grade. Our scores take no account of the (irrelevant) failures of these eight pages, for on the whole this is the most improved set of standards we have encountered since 1998.

Deductive geometry is not strong, but deduction *is* demanded, and reasoning is threaded throughout: The distributive law, "the logic of algebraic operations," "derive formulas for ... area, volume, lateral area," and so on—indeed, many such things. Proofs of the quadratic formula and the Pythagorean theorem are not demanded explicitly, but can easily be inferred.

The document is flawed here and there by what seems obligatory obeisance to current trends, and sometimes by careless writing: "Use inductive reasoning to test and prove that a formula is correct" is certainly not possible, unless the authors meant "by mathematical induction." But its basic strength shines through in spite of the occasional lapse.

Science

South Dakota has published the *Science Content Standards* (June 1999) and the companion *Technical Guide for Implementing Content Standards: Science* (Draft III, March 1999). The only significant difference between them appears to be organization; the former document sets forth the standards grade by grade in K-8 and by discipline for grades 9-12. The latter presents the same standards in tabular form so as to facilitate cross-comparison within the grade clusters K-2, 3-5, 6-8, and 9-12. In addition, the *Technical Guide* classifies the benchmarks into rational groups. As the *Technical Guide* is easier to analyze, it is the document we consider here. And, in general, it's a solid piece of work. It has no significant scientific errors. It generally provides for steady deepening of the student's understanding as he or she progresses. A significant number of important items are introduced at early grade levels, with due consideration for the student's level of development, and then built upon in successive grades. For instance, the basic ideas of biological evolution are introduced at grades 3 and 4.

Although there could be more detail in the expansion of these ideas at higher grade levels, the South Dakota standards are unique in their explicit attention to the strong interaction between biological and geological evolution: "Investigate how interactions among Earth's crust, oceans, atmosphere, and organisms have resulted in the ongoing change of the Earth system" (grades 9-12).

Simple machines are introduced at grade 3 and the concept of mechanical work builds on this at grade 4. Fourth graders learn about series and parallel circuits and distinguish between static and current electricity. Building on these electrical ideas, fifth graders learn about electric potential, current, and resistance. A clear distinction between kinetic and potential energy is also introduced at grade 4. The concept of element and compound is introduced at grade 5, as are the concepts of density and of the constancy of melting and boiling points and (remarkably!) of universal gravitation. Sixth graders "analyze the relationship among mass, weight, volume, and density." At grade 7, students learn about mass and energy conservation and experience their first exposure to Newton's laws; at grade 8, they are to use those laws explicitly.

The basic ideas of large-scale earth structure and plate tectonics are introduced at grade 5. They are subsequently expanded steadily through grades 9-12. Measurement error is introduced explicitly at grade 6, as is the innate tentativeness of scientific knowledge. Eighth graders learn about the meaning and interrelations among scientific theory, hypothesis generation, and experimentation.

Although the details are somewhat vague, the wording of the grades 9-12 standards suggests that the high school student is expected to learn about mechanics in considerable detail. It would be better if some of the statements were expressed mathematically to make this clear. South Dakota is unique in introducing high school students to the concept of scientific paradigms and scientific revolutions.

Paradoxically, a few key scientific ideas are introduced unusually late. Among these are the periodic table (grade 7), the cell as a building block (grade 6), and the cause of the seasons (grade 6).

Some significant shortcomings also permeate these standards. There is little explicit attention to laboratory work, to the use of mathematical techniques, and to the importance of writing in scientific communication. In spite of these shortcomings, however, the *South Dakota Science Content Standards* and the *Technical Guide* furnish a solid basis for building and evaluating a science curriculum.

■

Tennessee

Report Card	1998	2000
English	F	F
History	*D*	*D*
Geography	*F*	*F*
Math	C	F
Science	*F*	*F*
Cum. GPA	0.60	0.20
Overall Grade	D-	F

English

This review covered the April 1999 edition of Tennessee's standards document; it is no different in content from the 1996 document reviewed previously. With this 1999 edition, Tennessee's Department of Education included CTB/McGraw-Hill's TerraNova Performance Levels Handbook and Instructional Objectives for Levels 10-21/22. One may therefore assume that Tennessee has decided to rely on available commercial standardized tests to provide clear testing objectives for reading and written language skills, instead of addressing the many deficiencies in the reading-and-language conventions strands of its standards document. However, these standardized tests do not address writing or literary study, and there are also other problematic areas in the standards document. Many standards are neither clear, nor specific, nor measurable. The document is also unclear as to whether phonics instruction will be systematic. We also reviewed Tennessee's new English II gateway test standards and found that they do not add much to the primary standards document.

Tennessee needs to rewrite its standards document in clear prose, with higher and lower objectives sorted out, and specific and measurable standards. Details for systematic vocabulary study need to be spelled out. Last but not least, some literary and cultural specifics should be incorporated into the standards at all educational levels, such as key authors, works, literary periods, and literary traditions (especially in American literature). By gearing reading and literary expectations to specific reading levels, Tennessee could assure its citizens that its public schools have the potential to develop a new generation capable of maintaining this country's civic culture.

History

The state supplied no evidence that its standards have been revised since 1998.

Geography

The state supplied no evidence that its standards have been revised since 1998.

Math

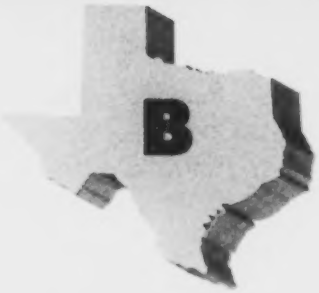
The K-8 *Mathematics Framework* was commented on in 1998 and remains in effect, while the *Content Standards and Learning Expectations* for grades 9-12 is new, replacing a 1991 document with something more in accordance with the spirit of the K-8 standards. (About half of the committee for grades 9-12 had also served on the K-8 committee.) The descriptions of the content for all these programs are very vague; they would permit courses of every imaginable degree of seriousness, though the general impression is that they would not be very demanding and would feature machine calculation even at the cost of comprehension. Algebra I asks for systems of linear equations to be solved by inverting matrices using a calculator, and there is little indication that any real linear algebra is contemplated. Except for the phrase "use the concept of variable ..." there is little about the logic of solving equations. The Geometry course features no deduction or constructions, and instead of the particular we are offered the

grandiose. For example (still under Geometry!): "Solve problems in number theory, geometry, probability, and statistics, and measurement and estimation using algebraic thinking and symbolism." False Doctrine is less evident than such Inflation in these standards, possibly because they are so vague. We also reviewed Tennessee's new Algebra I gateway test standards and found them to be consistent with the 9-12 standards (i.e., they too are poor in quality).

Science

Though Tennessee added a very brief and general outline for a 10th grade biology exam to its Science Framework, the outline did not add enough content or specificity to warrant a change of grade. ■

Texas



Report Card	1998	2000
English	B	B
History	B	B
Geography	*A*	*A*
Math	*B*	*B*
Science	*C*	*C*
Cum. GPA	3.00	3.00
Overall Grade	B	B

English

The final version of Texas's standards in the English language arts and reading, released in 1997, are very strong. Most standards are clear, specific, and measurable, and they cover most areas in the English language arts and reading extremely well. The document also expects students to be given systematic instruction in decoding skills and to use Standard English orally and in writing by high school.

However, there are several major limitations in this document. First, there are no literary or cultural specifics to speak of, save for one mention of American literature in grade 11 and one mention of British literature in grade 12. Second, the document hints in introductory material at each grade level that other languages besides English may be used in the English language arts class. Third, the document is almost unreadable and unusable by the general public. The final version contains, in three columns on each page for grades K-6, standards for English language arts classes, standards for Spanish language arts classes, and standards for English as a Second Language classes. As a result, the document cannot legitimately be entitled "English Language Arts and Reading" and ordinary parents have to go through a bulk almost two inches thick to find out what the state's academic expectations are for English for grades K-12. At present, the bulk, contents, and layout of this document defeat the major purpose for which it was intended—to inform the public of what the state's academic expectations are for its students in the English language arts.

The document can be strengthened in several ways. First, Texas should remove from all grade-level introductions its suggestion that other languages may be used in the English language arts class. Second, some literary and cultural specifics should be incorporated into its standards at all educational levels, such as key authors, works, literary periods, and literary traditions, to signal clear expectations for students' reading level as well as their knowledge of the nature and history of this country's literary and civic culture. Finally, Texas should eliminate all the repeated material that is in the English language arts section of this document, put the Spanish language arts standards in a document that deals with Spanish K-12 (where they belong), and remove all the repeated material in the ESL section (putting the little that will be left in an appendix). This would reduce this elephantine document to a reasonable and readable number of pages for both teachers and the general public.

History

The *Texas Essential Knowledge and Skills* standards provide a lot of historical content, especially for Texas and United States history. However, the content for world and European history is extremely weak. To judge or "analyze" an historical event requires much more than "lists of skills." Those standards that include detailed content, as Texas does, must then take the standards to the next level by connecting specific skills to specific content. These standards have a lot of admirable content, and much skill development, too. But they fail to bridge the intellectual gap in between.

Texas's history scores have

changed since 1998 in three areas. First, in the early grades, there is an extensive use of biographies. This is generally praiseworthy, but biographies *without* the structure of chronology do not translate into children learning that chronology is a fundamental building block of history. Moreover, political correctness seems to have influenced the selection of biographies. Second (and third), there is evidence that these new standards attempt to manipulate children's feelings and attitudes and that they tolerate political and social dogma.

Geography

The state supplied no evidence that its standards have been revised since 1998.

Math

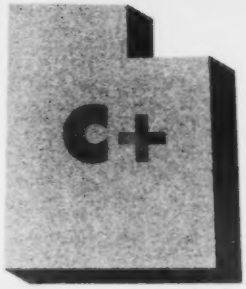
The state supplied no evidence that its standards have been revised since 1998.

Science

The state supplied no evidence that its standards have been revised since 1998.

■

Utah



Report Card	1998	2000
English	C	C
History	C	C
Geography	C	C
Math	B	B
Science	B	B
Cum. GPA	2.40	2.40
Overall Grade	C+	C+

English

This review covers a 1996 document containing standards for grades K-6, and a 1999 document containing standards for grades 7-12. These documents are written clearly; most standards are clear, specific, and measurable; and most areas of the English language arts and reading are covered well. Among the strong features of the elementary-grade document is the attention paid to vocabulary development in speaking, reading, and writing. The elementary-grade document also has an innovative section on developing a spelling vocabulary. However, the secondary-school standards are not as good as those for the elementary grades. They are highly repetitive, with little increases in complexity through the high school grades. Moreover, there are no literary and cultural specifics at all, not even a requirement for students to study American literature. Further, the secondary-school document too strongly favors a constructivist approach to literary reading.

The documents would benefit greatly from having some literary specifics incorporated into their standards at all levels, such as key authors, works, literary periods, and literary traditions, to signal academic expectations for students' reading levels as well as their knowledge of the nature and history of this country's literary and civic culture. It would also be useful if the elementary-grade document made clear the teaching of systematic phonics in the primary grades.

History

The state supplied no evidence that its standards have been revised since 1998.

Geography

The state supplied no evidence that its standards have been revised since 1998.

Math

The state supplied no evidence that its standards have been revised since 1998.

Science

The state supplied no evidence that its standards have been revised since 1998. ■

Vermont

Report Card	1998	2000
English	-	D
History	F	F
Geography	F	F
Math	C	C
Science	*B*	*B*
Cum. GPA	1.25	1.20
Overall Grade	D+	D+

English

This review is based on the standards in the 1996 document and the additional objectives provided in a May 1999 supplement. It is not clear what the English language arts and reading standards actually are. "Communications standards" include "artistic dimensions" in the arts. Moreover, the "arts, language, and literature standards" group all the arts together under a subheading called "critical response" and "artistic process," even though there is a distinct subsection called "literature and media" that seems to pertain only to literature. This is a very confusing document as it does not make clear the province of the English language arts or reading teacher or what is to take place in the English class. In addition to an unclear organizing scheme, many standards span the entire K-12 range. Only the research-and-writing objectives seem to be adequately addressed. More difficulties lie in the quality of the standards themselves; the 1996 document contains a large number of vague, pretentious, and unmeasurable standards. And because many of these standards cover so wide a span of schooling, it's not clear what's intended for lower grade levels in particular (e.g., it would be instructive to learn how K-8 students are to demonstrate "understanding of the historical eras, styles, and evolving technologies that have helped define forms and structures in the arts, language, and literature"). In sharp contrast, the objectives in the 1999 document are almost all measurable.

Vermont needs to provide a document for English language arts and reading that is based on a clear organizing scheme, with measurable and meaningful standards for grades K-12 that show increasing intellectual expectations. It also needs to provide some clear literary and cultural specifics to follow up on its commendable mention of "contemporary and enduring works of American literature," "important themes of American experience .... through time," and "diverse literary traditions." Vermont could end up with high expectations in a statewide assessment if it interprets its current standards at a uniformly high level. In and of themselves, however, these standards and objectives leave so much latitude for interpretation that their demands are not at all clear.

History

All of Vermont's history standards fit neatly into three pages. This economy of educational direction goes a long way to describe the quality of these standards. The stated purposes of these standards are to "provid[e] a structure from which standards-based district, school, and classroom curriculum can be developed, organized, implemented, and assessed." With due consideration to Vermont's strong Yankee traditions, I shall simply note that this statement is not merely naively optimistic, it is totally unrealistic.

Geography

Vermont receives an F with a score of 28, an increase of 6 points since 1998. The state has revised its standards but has made negligible improvements. The two geography-standards areas (Geographical Knowledge and Movement and Settlements) are too broad.

The material arrayed below them, purporting to show ways that students can prove what they have learned, while mostly new, is unfocused and random, revealing no intent to cover geography either rigorously or comprehensively. History has been de-emphasized. No apparent national model was used in the revision.

Grades pre-K through grade 4 cover some fundamental learning but there is no mention of vocabulary. Human systems, which encompasses movement and settlement, receives a middling score. But other areas receive low or no scores. This is true through middle grades as well. In high school (where, in the earlier iteration, there was no material at all), categories regarding skills and applications receive some emphasis. A content area called Interrelationships has been dropped.

On the whole, this rewrite is disappointing.

Math

The body of the Framework is still that of the 1996 version reviewed in 1998. The part of the Framework devoted to mathematics was quite small: Only three, though crowded and crisp, pages are given to "Mathematical Understanding" in a document that includes not only English, science, and technology, etc., but also long appendices on the theoretical underpinnings of "standards-based" curricula and their assessment, and allied commentary, some of which we have counted as "Inflation." The principal failing of the implied curriculum is elsewhere: in its lack of attention to Reason, and its lack of clarity in some of the content prescriptions.

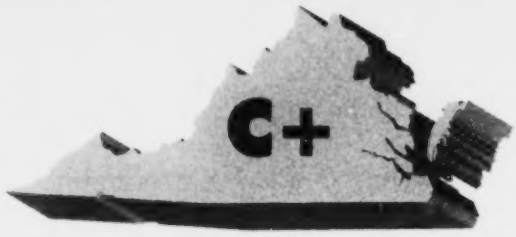
Now the State has added some paragraphs, all of which either help clarify the demands (especially at the lower levels) or add to the content. In particular, the high school level now calls for some combinatorial skill (nCr), the use (though not proof) of the Pythagorean Theorem, attention to rates and their interpretation as ratios and slopes of graphs, and the whole subject of right-triangle trigonometry. These amendments take only a few lines, but make an appreciable addition to the content.

Science

The state supplied no evidence that its standards have been revised since 1998.

■

Virginia



Report Card	1998	2000
English	B	B
History	A	A
Geography	D	D
Math	B	B
Science	D	D
Cum. GPA	2.40	2.40
Overall Grade	C+	C+

The state supplied no evidence that its standards have been revised since 1998. ■

Washington

Report Card	1998	2000
English	*D*	*D*
History	F	F
Geography	*F*	*F*
Math	F	F
Science	*B*	*B*
Cum. GPA	0.80	0.80
Overall Grade	D-	D-

English

The state supplied no evidence that its standards have been revised since 1997.

History

The *Washington Essential Academic Learning Requirements*, by name, infers that "essential" and "academic learning requirements" would be found in the document. However, in the six pages devoted to "history content," I failed to find a single item that reflects such promise. There is no history material here that would be useful either for teachers to prepare an "essentials-based" curriculum or for parents to know what their children are supposed to be learning at school.

Geography

The material was reformatted in June of 1998 but no other changes have been observed.

Math

The Washington math standards reviewed in Fordham I have now been republished, *verbatim* as it appears though re-formatted, under the title *Learning Requirements*. Since there has been no real change here, our currently announced scores and grades are identical with those reported at that time. However, it should be mentioned that the state has now sent us other documents of an introductory or explanatory sort which, with the changed appearance of the old standards, made it difficult at first to see that the present central document is the same as its predecessor.

In particular, there has now been appointed a State Commission on Student Learning, which announced (August 1998) as part of its "mission statement" an intention "...to update and elevate the standards of academic achievement and improve student performance in Washington State...." In the case of mathematics this aim has not yet really been addressed, since this Commission has approved the republication, albeit with a new introduction ("Essential Academic Learning Requirements Technical Manual") and new formatting, of the same inadequate standards it has inherited from 1997.

Science

The state supplied no evidence that its standards have been revised since 1998.

■

West Virginia

Report Card	1998	2000
English	-	B
History	C	C
Geography	B	B
Math	B	B
Science	F	F
Cum. GPA	2.00	2.20
Overall Grade	C	C+

English

This review is based on West Virginia's 1996 document, a document with many strong features. It has a reasonable organizing scheme and contains clear, specific, and measurable standards. It expects all students to demonstrate use of Standard English orally and in writing, and it seems to expect systematic phonics instruction in the primary grades. For the most part, its standards address all areas of the English language arts and reading satisfactorily, although in large part this is because the document contains an enormous number of objectives (not all of which are to be assessed on statewide assessments). This is, in fact, a serious limitation: too many objectives and too many lower-level or discrete skills. By the end of grade 5, for example, 188 discrete items have been mentioned. Moreover, they are not always grouped in meaningful ways within a category, and the items are not always listed in an order going from broader to more specific.

Some of the details for literary study are commendable. West Virginia is one of the few states that expect students to study authors from their own states. It also includes titles from American literature as examples for some of its literary standards in grade 11, spells out study of major periods of British literature in grade 12, and provides titles as examples of some of the literary standards in grade 12. However, it does not refer to a core list of authors or titles, nor does it suggest in its standards what reading levels it expects at the different high school grades, either by specifying required titles or authors, or by requiring specific reading levels at various grade levels, or by providing sample reading passages to suggest what level of reading it wants at specific grade levels. Addressing these deficits, reducing drastically the number of objectives, and developing a better strand on research processes would strengthen West Virginia's standards.

History

The state supplied no evidence that its standards have been revised since 1998.

Geography

The state supplied no evidence that its standards have been revised since 1998.

Math

The state supplied no evidence that its standards have been revised since 1998.

Science

The state supplied no evidence that its standards have been revised since 1998.

■

Wisconsin

Report Card	1998	2000
English	C	A
History	F	F
Geography	F	F
Math	C	C
Science	C	C
Cum. GPA	1.20	1.60
Overall Grade	D+	C-

English

Wisconsin's final version of its standards document, released in 1998, is generally excellent. It is organized in coherent strands, it clearly expects students to use Standard English in writing and speaking, and it addresses most areas of the English language arts and reading adequately. Indeed, its strand on research is extremely well done. The document is also one of the few to clearly address the history and nature of the English language. And most of its standards are clear, specific, and measurable. It is one of the better sets of state standards.

Still, the standards contain no literary or cultural specifics at all. Although the document mentions study of "classical" and "contemporary" literature, and texts from "the United States and cultures worldwide," there are no literary priorities for this country. Some literary specifics should be incorporated into its standards at all educational levels, such as key authors, works, literary periods, or literary traditions, to signal academic expectations for students' reading levels as well as their knowledge of the nature and history of this country's literary and civic culture. Without reading levels, or a few key titles or authors spelled out at the grade levels assessed, assessments based on the present standards may not create high academic expectations for all Wisconsin students.

History

The *Wisconsin Social Studies Standards* provide four pages for teachers, students, and parents to determine what shall be expected of Wisconsin's children in history. Rather than decisive answers, we find vague, unmeasurable statements that are virtually content-free. A promise is made that "students in Wisconsin will learn about the history of Wisconsin, the United States, and the world, examining change and continuity over time in order to develop historical perspective, explain historical relationships, and analyze issues that affect the present and future." But the standards fail to deliver the specific guidance that might make it possible to keep this lofty promise.

Geography

A few of the standards have been reworded or renumbered in the state's new social-studies standards booklet, but nothing has changed enough to alter the score.

Math

The state supplied no evidence that its standards have been revised since 1998.

Science

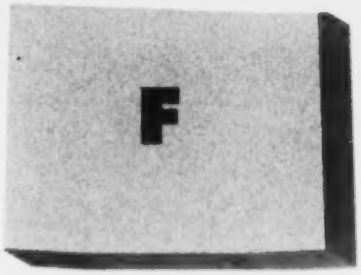
Wisconsin's Model Academic Standards (1998) is based on the draft document reviewed in 1998. Like its predecessor, it is brief and sketchy. It sets standards for the ends of grades 4, 8, and 12. In the final document, subheadings have been added to improve the organization of the whole. A number of individual items have been added and a number removed. Many items have been rephrased, often with a modest improvement of clarity and consistency.

The new document still lacks sufficient detail to be more than minimally useful. Some of the additions are puzzling and some

obviously are intended to appease young-Earth creationists. For example, at grade 12: "Using the science themes, understand that the origin of the universe is not completely understood, but that there are current ideas in science that attempt to explain its origin." While this statement is not incorrect, we do not see parallel statements in other domains of science. Also at grade 12, there is a subheading, "Conservation of Energy and Increase in Disorder." Under it, we find a single item relating only to energy conservation and nothing about entropy. As a false exposition of the second law of thermodynamics is a staple of young-Earth creationism, we can only infer that the phrase "Increase in Disorder" is intended to introduce these distortions into the curriculum.

By and large, however, there has been little change in the marginal quality of the Wisconsin standards.

Wyoming



Report Card	1998	2000
English	-	D
History	-	F
Geography	-	F
Math	-	D
Science	-	F
Cum. GPA	-	0.40
Overall Grade	-	F

English

Wyoming's standards document was completed in 1998. Although it is not clear that it is meant to serve as the basis for statewide assessments, it has several strong features. For the most part it has a useful organizing scheme, its standards are specific, and three levels of performance criteria are provided for the benchmarks offered at grades 4, 8, and 11. Moreover, Wyoming is among the few states to specify the reading levels it expects at those grade levels. However, the document has a number of limitations in its efforts to guide local school districts on important matters of content and pedagogy.

The increases in complexity over the grades are not clearly worked out and visible. It is unclear whether Wyoming students are expected to use Standard English conventions orally and in writing and if there is to be systematic phonics instruction in the early grades. Further, there are no details on vocabulary development, although other reading comprehension skills are addressed satisfactorily. Few details are offered on research processes, language conventions, and literary study. Indeed, literary study is an area with serious deficiencies. There are no literary or cultural specifics at all, not even an expectation that students are to study American literature, never mind specific literary periods in American history. Without any literary and cultural specifics, or suggested or required titles or authors for the secondary grades, it is not clear how these standards can lead to common and high academic expectations for all Wyoming students. Nor can the state assure its citizens that its schools can develop educated citizens capable of maintaining this country's civic culture—its basic political principles, institutions, and processes—through knowledge of the history of its literary and intellectual culture.

History

The *Wyoming Social Studies Content and Performance Standards* offer very little that's useful for teachers, students, and parents. The standards apply seven strands, drawn directly from documents of the National Council for the Social Studies. Unfortunately, even the best of that model does not seem to have been applied. The standards are devoid of meaningful historical content. While a claim is made that these standards "were referenced [to other national standards documents] to establish the rigor of the *Wyoming Social Studies Content and Performance Standards*," there is no evidence that these standards contain academic rigor. There is also evidence that children are being manipulated. The best that can be said is that Wyoming educators have begun the task of exploring the world of standards writing.

Geography

Wyoming receives an F with a score of 26. These new draft standards, the first reviewed from this state, need considerable improvement. Geography material (People, Places, and Environments: Students demonstrate an understanding of interrelationships among people, places, economies, and environments) is located as the fifth of seven social-studies stan-

dards. The standard itself is misleading. People are never mentioned in the material. Places and Environments are barely referenced. And the use of the word "economies" is mysterious, particularly as economics is (somewhat) explored in the separate standard titled "Production, Distribution, and Consumption."

The document references some excellent state geography standards, particularly those of Colorado, Indiana, and Texas, in its introductory information, but evidently no national models were used. *Geography for Life*, the national geography standards published in 1994, is not mentioned. Interestingly, eighth graders are asked to "identify the five themes of geography" that are found in the *Guidelines for Geographic Education*. This is not credited either.

Scores on General Characteristics are acceptable, for the most part, as the standards fulfill the criteria. But scores on Comprehensiveness and Rigor are weak. The material is neither thorough nor demanding. The presentation has standards designed for grades 4, 8, and 11. The format includes content within the broad, general standard, a few "benchmarks," and NAEP-like "performance standards descriptors" at advanced, proficient, and partially proficient levels. For example, fourth graders must respond to three benchmarks that basically relate to fundamental map skills and the location of "landmarks and landforms." Possible responses: advanced performers must use "appropriate tools to produce a representation" while proficient performers must utilize "given tools to identify locations" and partially proficient performers must respond to "specific instructions to select and use appropriate tools to identify given locations." Unfortunately, that's pretty much it for geography learning in fourth grade.

The material in grades 8 and 11 is similarly weak, vague, and oddly expressed. And at the bottom of each of the three grade-level-cluster standards pages regarding geography, room is taken up by reiteration of a rationale from the National Council for the Social Studies that elaborates on the need for the study of "people, places and human-environment interactions" because of advances made by technology. Given the brevity and mediocre quality of these standards, this ennobling rhetoric seems particularly out of place.

Math

Apart from introductory material, the *Content and Performance Standards* is 28 pages long, each page in three columns. The first column, headed *Content Standard*, is quite vague (for example, under Standard 7: Problem-Solving and Mathematical Reasoning, "Students apply a variety of problem-solving strategies to investigate and solve problems from across the curriculum as well as from practical applications." This statement, along with similar ones for each of the other six standards (Number Operations and Concepts, Geometry, etc.), is identically stated at each of the three grade levels (grades 4, 8, and 11) for which benchmarks are then given. The second column, which should be more definite, consists of the "benchmarks" (for example, for the grade 4 level of the same Standard 7: "Students select strategies appropriate for solving the problems" and, "Students sort and classify objects and numbers to demonstrate logical connections." The third column, typically half the page, then defines "Performance Standards" as Advanced, Proficient, or Partially Proficient in paragraphs as vague as the standards and benchmarks preceding them. For example: "Advanced: When presented with real-world and content problems, fourth-grade students performing at an advanced level demonstrate the ability to identify the problems to be solved, select relevant data, and identify and apply a variety of appropriate strategies and methods of calculation to solve the problem."

In consequence, even though not every entry is quite as vacuous as the ones just quoted, the document as a whole is almost totally useless for determining what is to be taught or when it is to be taught or how well it has been learned. Our scores for Content, then, are based on guesswork to some degree, and the one point for Reason is based on some hinted mentions concerning early arithmetic, and some geometry in high school (page 21: "Students formulate conjectures through inductive reasoning, verify conjectures through deductive reasoning, construct and present a valid argument, and use counter examples to invalidate arguments." But the indefiniteness here, as elsewhere, is troubling.

False Doctrine abounds: "Further proficiency in mathematics requires … employment of technology" is certainly false, and the enthusiastic advocacy of the use of calculators, algebra tiles, etc., is overdrawn throughout. Under Inflation we must note the many repetitions as well as such things as, "Students determine whether to use theoretical or experimental probability to repre-

sent and solve a problem involving uncertainty," though it is sometimes hard to distinguish between being vague and being pointless.

The present document is the first we have seen from Wyoming. The introduction credits the standards published by Virginia, Colorado, and the NCTM as its models, but of these three the present authors think well only of Virginia's. None of the present criticism is to say that Wyoming students are not getting a good mathematical education; only that these standards are insufficient for the purpose of creating a strong mathematical curriculum, or even point of view. The Wyoming *Standards* also has the misfortune of including an unnecessary and often confused glossary.

Science

The *Wyoming Science Content and Performance Standards* is currently available in draft form (no date but presumably early 1999). Specific acknowledgment is given to the AAAS, NAS, and NSTA model documents, as well as to the standards documents of seven other states, including four that were highly rated in *SSS*. In accord with several other states that set three or four levels of performance at each grade or grade-cluster level, Wyoming establishes the levels Partially Proficient, Proficient, and Advanced. Each Benchmark is accompanied by statements that establish the requirements for each of the three levels. In addition, "Snapshots in Action" presents examples for classroom implementation of the standards.

Curiously, the standards are presented in reverse order: grade 11 first, followed by grade 8, and then grade 4. Although the grade 11 standards are intended to apply to the grade span 9-12, there appear to be no explicit standards for grade 12. One may infer that a graduation-level exam is planned for administration at grade 11 with a second chance at grade 12.

Unfortunately, the standards are skimpy and exceedingly vague. Of the nine broad strands, only the first, "Basic Concepts and Knowledge," is concerned with the content of science; the others, although interesting, are entirely general: Unifying Concepts and Processes, Science As Inquiry, Habits of Mind, Communication, Science in Personal and Social Perspectives, History and Nature of Science, Science and Technology, and Safety. As a consequence, all of the specific scientific knowledge at all three levels is crammed into less than six half-pages. Adding to this deficiency, the Performance Standards are hopelessly vague. For instance, at grade 8 students demonstrate Proficient Performance in all of the content areas by demonstrating "a broad-based knowledge and understanding of integrated science concepts as established in the benchmarks."

In sum, the *Wyoming Science Content and Performance Standards* are useless for either curriculum planning or evaluation of performance. ■

Appendix A: English Language Arts/Reading Criteria and Detailed Grades

The English Language Arts/Reading standards appraisal employed 34 criteria in 5 categories. To read an explanation of the criteria and other supporting materials, see Sandra Stotsky, *State English Standards: An Appraisal of English Language-Arts/ Reading Standards in 28 States*, July 1997, on-line at www.edexcellence.net.

A 5-point rating scale was used, consisting of "no," "to some extent," "unclear," "for the most part," and "yes." A rating usually reflects a dominant impression of how a particular feature of the document meets the criterion for that feature. For only a few criteria can the answer be a clear yes or no (for example, the document either does or does not acknowledge the existence of a body of literature called American literature). For most of the others (for example, the specificity of its standards), a document can vary in the extent to which it meets the criterion (for example, it may have a large number that are specific but some that aren't).

To show how the standards documents compare with each other, the ratings for the 34 criteria were converted into numerical scores. 0=no; 1=to some extent; 2=unclear; 3=for the most part; and 4=yes. I gave "unclear" a 2, a point midway in the scale, in order not to penalize excessively what I thought to be unclear language in a document. This rating was used sparingly; I made a judgment whenever possible. Therefore, a rating tells the reader how well that feature of a particular document meets the criterion.

A. Purpose, audience, expectations, and assumptions of the standards document(s)

1) The document is written in clear English prose, for the general public as well as for educators.
2) It assumes that English is the language to be used in English language-arts classes, and the only language to be used.
3) It expects all students to demonstrate use of standard English, orally and in writing.
4) It acknowledges the existence of a corpus of literary works called American literature, however diverse its origins and the social groups it portrays.
5) It expects students to become literate American citizens.
6) It expects explicit and systematic instruction in decoding skills in the primary grades as well as the use of meaningful reading materials.
7) It expects students to do regular independent reading through the grades, suggesting how much reading students should do per year as a minimum, with some guidance about its quality.
8) It expects the standards to serve as the basis for clear and reliable statewide assessments.

B. Organization of the standards

1) They are presented grade by grade or in clusters of no more than three to four grade levels.
2) They are grouped in categories reflecting coherent bodies of scholarship or research in the English language arts.
3) They distinguish higher-order knowledge and skills from lower-order skills, if lower-level skills are mentioned.

C. Disciplinary coverage of the standards

1) The standards clearly address listening and speaking. They include use of various discussion purposes and roles, how to participate in discussion, desirable qualities in formal speaking, and use of established as well as peer-generated or personal criteria for evaluating formal and informal speech.
2) The standards clearly address reading (and viewing) to understand and use information through the grades. They include progressive development of reading skills and a reading vocabulary, and knowledge and use of a variety of textual features, genres, and reading strategies for academic, occupational, and civic purposes.
3) The standards clearly address the reading (or viewing), interpretation, and critical evaluation of literature. They include knowledge of diverse literary elements and genres, different kinds of literary responses, and use of a variety of interpretive and critical lenses. They also specify those key authors, works, and literary traditions in American literature and in the literary and civic heritage of English-speaking people that all students should study because of their literary quality and cultural significance.
4) The standards clearly address writing for communication and personal expression. They

require familiarity with writing processes, established as well as peer-generated or personal evaluation criteria, and various rhetorical elements, strategies, genres, and modes of organization.

5) The standards clearly address oral and written language conventions. They require the use of standard English conventions for sentence structure, spelling, usage, penmanship, capitalization, and punctuation.
6) The standards clearly address the nature, dynamics, and history of the English language. They cover the nature of its vocabulary, its structure (grammar), the evolution of its oral and written forms, and the distinction between the variability of its oral forms and the relative permanence of its written form today.
7) The standards clearly address research processes, including developing questions and locating, understanding, evaluating, synthesizing, and using various sources of information for reading, writing, and speaking assignments. These sources include dictionaries, thesauruses, other reference materials, observations of empirical phenomena, interviews with informants, and computer data bases.

D. Quality of the standards

1) They are clear.
2) They are specific.
3) They are measurable (i.e., they can lead to observable, comparable results across students and schools).
4) They are comprehensive.
5) They are demanding:
   a. They are of increasing intellectual difficulty at each higher educational level and cover all important indices of learning in the areas they address.
   b. They index or illustrate growth through the grades for reading by referring to specific reading levels or to titles of specific literary or academic works as examples of a reading level.
   c. They illustrate growth through the grades for writing with writing samples.
   d. For other subdisciplines, they provide examples of specific reading, writing, or oral language features, activities, or assignments that clarify what is expected for each standard or benchmark.
6) Their overall content is sufficiently specific, comprehensive, and demanding to lead to a common core of high academic expectations for all students in the state, no matter what school they attend.

E. Anti-Literary or Anti-Academic Requirements or Expectations: Negative Criteria

1) The document implies that the literary or popular culture of our or any other country is monolithic in nature.
2) The reading/literature standards require students to relate what they read to their lived experiences.
3) The reading/literature standards want reading materials to address contemporary social issues.
4) The document implies that all literary and nonliterary texts are susceptible of an infinite number of interpretations and that all points of view or interpretations are equally valid regardless of the logic, accuracy, or adequacy of the supporting evidence.
5) The examples of classroom activities or student writing offered are politically slanted or reflect an attempt to manipulate students' feelings, thinking, or behavior.
6) The standards teach moral or social dogma.
7) The document explicitly or implicitly recommends one instructional approach for all teachers to follow.

Table A1. Ratings for Section A: Purposes, Audience, Expectations, and Assumptions

	1. Writing is a major school subject	2. Correct use of English expected in the classroom	3. Use of standard English conventions expected	4. American literature mentioned	5. Civic goals of education acknowledged	6. Decoding skills to be taught systematically	7. Independent reading expected	8. To be used to promote assessment	Total (out of 32)
Alabama	4	4	4	4	4	4	3	4	31
Alaska	4	4	2	0	0	2	0	4	16
Arizona	4	2	1	4	0	4	0	4	19
Arkansas	4	4	4	0	0	4	1	4	21
California	4	4	4	4	4	4	4	4	32
Colorado	4	0	3	3	0	2	0	4	16
Connecticut	4	4	4	1	3	3	1	4	24
Delaware	4	4	3	1	0	4	0	4	20
District of Columbia	4	4	4	4	4	4	4	4	32
Florida	4	4	4	1	1	2	1	4	21
Georgia	4	4	4	4	0	4	1	4	25
Hawaii	4	4	4	0	0	2	1	0	15
Idaho	-	-	-	-	-	-	-	-	-
Illinois	4	4	4	4	4	4	0	4	28
Indiana	4	4	4	0	0	4	1	4	21
Iowa	-	-	-	-	-	-	-	-	-
Kansas	4	2	4	0	0	2	0	4	16
Kentucky	4	4	3	0	0	2	0	4	17
Louisiana	4	4	4	4	4	2	1	4	27
Maine	4	4	4	1	3	2	0	4	22
Maryland	4	4	4	4	2	4	4	4	30
Massachusetts	*4*	*4*	*4*	*4*	*4*	*4*	*1*	*4*	**29**
Michigan	*1*	2	3	*0*	*1*	2	*0*	*4*	13
Minnesota	4	4	4	0	0	4	0	2	18
Mississippi	3	4	4	1	0	3	1	4	20
Missouri	4	1	4	4	4	2	0	4	23
Montana	3	4	3	0	0	2	0	0	12
Nebraska	4	4	4	4	4	4	3	2	29
Nevada	4	4	4	4	0	4	0	0	20
New Hampshire	4	4	4	4	3	2	4	4	29
New Jersey	3	2	4	0	0	0	1	4	14
New Mexico	4	2	4	0	0	4	0	2	16
New York	4	4	4	0	0	3	4	4	23
North Carolina	4	4	4	4	4	4	1	4	29
North Dakota	4	4	4	0	0	4	0	0	16
Ohio	1	0	4	0	0	0	4	4	13
Oklahoma	1	4	2	0	0	4	1	4	16
Oregon	3	4	3	0	0	2	0	3	15
Pennsylvania	4	4	1	0	0	2	1	4	16
Rhode Island	1	2	4	0	3	2	0	4	16
South Carolina	4	4	4	4	0	4	0	4	24
South Dakota	4	4	4	4	0	1	0	0	17
Tennessee	1	4	3	0	1	2	1	4	16
Texas	1	0	4	4	4	4	3	4	24
Utah	3	2	3	0	0	3	4	0	15
Vermont	3	4	4	4	4	1	4	4	28
Virginia	*4*	*4*	*4*	*4*	*4*	*4*	*1*	*4*	**29**
Washington	*4*	2	3	*0*	*0*	3	*1*	*4*	**17**
West Virginia	4	4	4	4	3	4	0	4	27
Wisconsin	4	4	4	1	4	3	0	4	24
Wyoming	4	4	2	0	0	2	0	2	14

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1997, at which time they were reviewed and graded by Dr. Stotsky. They were not reviewed a second time for this report.

Table A2. Ratings for Section B: Organization of the Standards

State	1. Organized grade by grade or in clusters	2. Divided categories from kindergarten	3. Higher and lower level [illegible]	Total
Alabama	4	4	4	12
Alaska	4	1	1	6
Arizona	4	4	4	12
Arkansas	4	4	0	8
California	4	4	4	12
Colorado	4	3	4	11
Connecticut	4	3	4	11
Delaware	4	3	4	11
District of Columbia	4	3	4	11
Florida	4	4	4	12
Georgia	4	4	1	9
Hawaii	4	3	4	11
Idaho	-	-	-	-
Illinois	4	4	4	12
Indiana	4	1	0	5
Iowa	-	-	-	-
Kansas	4	3	3	10
Kentucky	4	4	0	8
Louisiana	4	3	4	11
Maine	4	4	1	9
Maryland	4	4	4	12
Massachusetts	4	3	4	11
Michigan	4	1	1	6
Minnesota	4	3	4	11
Mississippi	4	3	3	10
Missouri	4	1	1	6
Montana	4	4	3	11
Nebraska	4	4	4	12
Nevada	4	4	4	12
New Hampshire	4	3	0	7
New Jersey	4	3	1	8
New Mexico	4	0	4	8
New York	4	1	4	9
North Carolina	4	1	3	8
North Dakota	4	3	4	11
Ohio	4	3	4	11
Oklahoma	4	3	1	8
Oregon	4	4	4	12
Pennsylvania	4	4	4	12
Rhode Island	4	0	0	4
South Carolina	4	4	4	12
South Dakota	4	4	3	11
Tennessee	4	4	0	8
Texas	4	4	4	12
Utah	4	3	4	11
Vermont	1	1	1	3
Virginia	4	4	4	12
Washington	4	4	4	12
West Virginia	4	3	0	7
Wisconsin	4	4	4	12
Wyoming	4	3	3	10

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1997, at which time they were reviewed and graded by Dr. Stotsky. They were not reviewed a second time for this report.

Table A3. Ratings for Section C: Disciplinary Coverage

State	1. Listening and speaking	2. Reading	3. Literature	4. Writing	5. Language conventions	6. Language	7. Research	Total (out of 28)
Alabama	3	4	3	4	4	4	4	26
Alaska	1	3	1	4	1	0	3	13
Arizona	3	3	3	3	3	3	4	22
Arkansas	3	3	1	1	1	0	3	12
California	4	4	3	4	4	4	4	27
Colorado	1	3	1	3	4	0	3	15
Connecticut	1	3	3	1	1	0	4	13
Delaware	3	3	3	4	4	3	4	24
District of Columbia	4	4	3	4	4	0	4	23
Florida	4	4	3	4	4	3	3	25
Georgia	3	3	3	4	4	4	4	25
Hawaii	3	1	3	4	1	0	3	15
Idaho	-	-	-	-	-	-	-	-
Illinois	4	4	3	4	4	1	4	24
Indiana	4	1	0	0	1	0	1	7
Iowa	-	-	-	-	-	-	-	-
Kansas	0	3	1	4	1	0	0	9
Kentucky	3	1	1	1	1	0	4	11
Louisiana	1	3	3	4	4	0	4	19
Maine	3	3	3	4	4	4	4	25
Maryland	4	4	3	4	4	4	4	27
Massachusetts	3	3	3	4	4	4	4	25
Michigan	0	3	3	3	3	1	1	14
Minnesota	3	3	0	1	0	0	0	7
Mississippi	4	4	3	1	4	1	3	20
Missouri	4	3	1	1	1	0	3	13
Montana	3	1	1	1	0	0	1	7
Nebraska	4	4	3	4	1	0	4	20
Nevada	4	4	3	4	4	3	4	26
New Hampshire	3	3	3	3	3	0	3	18
New Jersey	1	1	1	3	3	0	1	10
New Mexico	4	3	3	4	4	1	4	23
New York	4	3	3	4	4	0	4	22
North Carolina	1	4	3	4	4	3	4	23
North Dakota	1	1	1	1	1	0	1	6
Ohio	3	3	3	4	4	1	3	21
Oklahoma	1	4	3	3	0	1	4	16
Oregon	1	1	1	3	3	0	1	10
Pennsylvania	4	4	1	4	1	3	4	21
Rhode Island	0	1	0	1	0	0	4	6
South Carolina	4	3	3	4	4	1	4	23
South Dakota	4	4	3	4	4	1	4	24
Tennessee	3	3	0	3	3	0	1	13
Texas	3	3	3	4	4	3	4	24
Utah	4	3	3	4	4	0	3	21
Vermont	1	1	1	3	1	1	4	12
Virginia	4	4	3	4	1	1	3	20
Washington	4	3	1	4	4	0	3	19
West Virginia	4	4	3	4	4	1	1	21
Wisconsin	4	4	3	4	4	4	4	27
Wyoming	3	3	1	4	1	0	1	13

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1997, at which time they were reviewed and graded by Dr. Stotsky. They were not reviewed a second time for this report

Table A4. Ratings for Section D: Quality of the Standards

State	1.	2.	3.	4.	4a.	4b.	4c.	4d.	5.	Total (of 36)
Alabama	4	3	3	4	3	3	0	1	3	24
Alaska	4	4	3	1	1	0	0	0	1	14
Arizona	*4*	*4*	*4*	*3*	*3*	*0*	*0*	*4*	*3*	*25*
Arkansas	4	1	1	1	1	1	0	0	1	10
California	4	4	4	3	4	1	0	0	3	23
Colorado	3	3	3	1	1	1	1	1	0	14
Connecticut	4	1	1	1	1	4	0	4	1	17
Delaware	4	4	3	3	3	4	0	1	3	25
District of Columbia	4	4	4	3	4	4	0	1	4	28
Florida	4	4	3	3	3	0	0	4	3	24
Georgia	4	4	3	3	3	0	0	0	3	20
Hawaii	3	1	1	1	1	0	0	0	1	8
Idaho	-	-	-	-	-	-	-	-	-	-
Illinois	4	4	4	3	3	0	0	1	3	22
Indiana	4	1	1	0	0	4	0	4	0	14
Iowa	-	-	-	-	-	-	-	-	-	-
Kansas	4	1	1	0	1	0	0	1	1	9
Kentucky	4	3	4	0	1	0	0	1	3	16
Louisiana	4	3	4	3	1	1	4	4	3	27
Maine	4	4	3	3	3	0	0	0	3	20
Maryland	3	4	4	3	4	0	0	0	3	21
Massachusetts	*4*	*4*	*4*	*3*	*3*	*4*	*0*	*4*	*3*	*29*
Michigan	*1*	*1*	*1*	*1*	*1*	*0*	*0*	*1*	*1*	*7*
Minnesota	4	1	2	1	1	0	0	0	1	10
Mississippi	3	3	3	1	1	4	0	4	1	20
Missouri	3	1	1	1	1	0	1	1	1	10
Montana	3	1	1	1	1	4	0	1	1	13
Nebraska	4	4	4	3	3	4	0	0	3	25
Nevada	4	4	4	3	3	0	0	1	3	22
New Hampshire	4	1	1	3	1	0	0	0	1	11
New Jersey	3	3	3	1	1	4	0	1	3	19
New Mexico	3	1	1	3	1	0	0	4	1	14
New York	4	4	4	3	3	1	1	3	3	26
North Carolina	4	4	4	3	3	0	0	1	1	20
North Dakota	4	1	0	0	0	0	0	4	0	9
Ohio	1	3	1	3	3	0	0	1	3	15
Oklahoma	4	3	3	3	3	0	0	1	3	20
Oregon	4	4	4	0	1	0	0	0	1	14
Pennsylvania	4	4	4	3	3	0	0	1	3	22
Rhode Island	1	0	0	0	0	0	0	1	0	2
South Carolina	4	3	3	3	3	0	0	1	3	20
South Dakota	4	4	3	3	3	0	0	1	1	19
Tennessee	1	0	0	1	0	0	0	0	1	3
Texas	4	4	4	3	3	0	0	0	3	21
Utah	4	4	3	3	3	0	0	3	1	21
Vermont	4	1	1	1	1	0	0	1	1	10
Virginia	*4*	*3*	*3*	*3*	*3*	*0*	*0*	*0*	*3*	*19*
Washington	4	3	3	3	1	0	0	0	1	15
West Virginia	4	4	4	3	3	1	0	1	3	23
Wisconsin	4	4	4	3	3	0	1	1	3	23
Wyoming	4	4	4	1	1	4	0	0	1	19

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1997, at which time they were reviewed and graded by Dr. Stotsky. They were not reviewed a second time for this report.

Table A5. Ratings for Section E: Anti-Literary or Anti-Academic Requirements or Expectations*

State	1. Culture considered to have single "perspective"	2. One's life to be read into literary texts	3. Literature to be chosen for social issues	4. Texts seen as having no limits to interpretations	5. Bias present in the examples offered	6. Dogma and generalizations taught	7. Specific pedagogy mandated	Total (out of 28)
Alabama	0	1	0	0	0	1	0	2
Alaska	1	4	0	0	0	0	0	5
Arizona	*1*	*0*	*0*	*0*	*0*	*0*	*0*	*1*
Arkansas	0	0	0	0	0	0	0	0
California	0	0	0	0	0	0	0	0
Colorado	4	0	4	0	4	0	0	12
Connecticut	0	0	1	4	0	1	3	9
Delaware	1	4	4	4	0	1	0	14
District of Columbia	0	4	0	0	0	0	0	4
Florida	1	4	0	1	0	1	1	8
Georgia	0	0	0	1	0	0	0	1
Hawaii	4	0	0	1	0	4	4	13
Idaho	0	4	4	0	0	1	4	13
Illinois	0	4	0	0	0	0	0	4
Indiana	0	0	0	0	0	4	0	4
Iowa	-	-	-	-	-	-	-	-
Kansas	1	4	0	0	0	0	0	5
Kentucky	1	4	3	0	0	0	0	8
Louisiana	0	4	0	0	0	0	0	4
Maine	0	0	0	0	0	0	0	0
Maryland	1	4	0	0	0	0	1	6
Massachusetts	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Michigan	*4*	*4*	*4*	*1*	*0*	*0*	*0*	*13*
Minnesota	0	0	0	0	0	0	1	1
Mississippi	0	4	1	0	0	0	0	5
Missouri	4	4	0	1	0	0	3	12
Montana	1	4	3	1	0	3	3	15
Nebraska	0	0	0	0	0	0	0	0
Nevada	0	0	0	0	0	0	0	0
New Hampshire	0	4	0	3	0	1	1	9
New Jersey	1	4	0	0	0	1	4	10
New Mexico	1	1	0	0	0	1	0	3
New York	4	4	1	0	1	0	0	10
North Carolina	1	4	1	0	0	0	0	6
North Dakota	1	4	0	1	0	1	0	7
Ohio	1	4	1	1	0	1	4	12
Oklahoma	0	4	0	0	0	0	0	4
Oregon	0	1	4	0	0	0	0	5
Pennsylvania	0	0	0	0	0	0	0	0
Rhode Island	0	4	4	1	0	0	4	13
South Carolina	0	1	0	0	0	0	0	1
South Dakota	0	0	0	0	0	1	0	1
Tennessee	0	1	0	0	0	0	1	2
Texas	1	4	1	0	0	0	1	7
Utah	0	3	3	0	0	0	1	7
Vermont	0	4	0	0	0	0	1	5
Virginia	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Washington	*4*	*4*	*4*	*0*	*1*	*0*	*0*	*13*
West Virginia	0	0	0	0	0	0	0	0
Wisconsin	0	0	0	0	0	0	0	0
Wyoming	0	0	0	0	0	0	0	0

* These negative criteria are rated in the same way as the other criteria are rated: no = 0, to some extent = 1, for the most part = 3, or yes = 4. But the totals are interpreted in the opposite way. Those states receiving the highest totals are the worst. Their standards documents contain the most anti-literary or anti-academic requirements or expectations. Those states receiving the lowest totals are the best. Their standards documents contain few or no anti-literary or anti-academic requirements or expectations.

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1997, at which time they were reviewed and graded by Dr. Stotsky. They were not reviewed a second time for this report.

Table A6: English Language Arts Summary Table*

State	Totals for Section A: Purposes and expectations	Totals for Section B: Organization of the Standards	Totals for Sections C: Standards	Totals for Section D: Quality of Standards	Totals for A, B, C & D	Totals for Section E: Specificity	Final Sum	Adjusted Score (sum plus 10 points for having standards)	Percentage (out of 108)	Final Grade
Alabama	31	12	26	24	93	2	91	101	93.5%	A
Alaska	16	6	13	14	49	5	44	54	50.0%	F
Arizona	19	12	22	25	78	1	77	87	80.6%	B
Arkansas	21	8	12	10	51	0	51	61	56.5%	D
California	32	12	27	23	94	0	94	104	96.3%	A
Colorado	16	11	15	14	56	12	44	54	50.0%	F
Connecticut	24	11	13	17	65	9	56	66	61.1%	D
Delaware	20	11	24	25	80	14	66	76	70.4%	C
District of Columbia	32	11	23	28	94	4	90	100	92.6%	A
Florida	21	12	25	24	82	8	74	84	77.8%	B
Georgia	25	9	25	20	79	1	78	88	81.5%	B
Hawaii	15	11	15	8	49	13	36	46	42.6%	F
Idaho	-	-	-	-	-	-	-	-	-	-
Illinois	28	12	24	22	86	4	82	92	85.2%	B
Indiana	21	5	7	14	47	4	43	53	49.1%	F
Iowa	-	-	-	-	-	-	-	-	-	-
Kansas	16	10	9	9	44	5	39	49	45.4%	F
Kentucky	17	8	11	16	52	8	44	54	50.0%	F
Louisiana	27	11	19	27	84	4	80	90	83.3%	B
Maine	22	9	25	20	76	0	76	86	79.6%	B
Maryland	30	12	27	21	90	6	84	94	87.0%	B
Massachusetts	29	11	25	29	94	0	94	104	96.3%	A
Michigan	13	6	14	7	40	13	27	37	34.3%	F
Minnesota	18	11	7	10	46	1	45	55	50.9%	F
Mississippi	20	10	20	20	70	5	65	75	69.4%	C
Missouri	23	6	13	10	52	12	40	50	46.3%	F
Montana	12	11	7	13	43	15	28	38	35.2%	F
Nebraska	29	12	20	25	86	0	86	96	88.9%	A
Nevada	20	12	26	22	80	0	80	90	83.3%	B
New Hampshire	29	7	18	11	65	9	56	66	61.1%	D
New Jersey	14	8	10	19	51	10	41	51	47.2%	F
New Mexico	16	8	23	14	61	3	58	68	63.0%	D
New York	23	9	22	26	80	10	70	80	74.1%	C
North Carolina	29	8	23	20	80	6	74	84	77.8%	B
North Dakota	16	11	6	9	42	7	35	45	41.7%	F
Ohio	13	11	21	15	60	12	48	58	53.7%	D
Oklahoma	16	8	16	20	60	4	56	66	61.1%	D
Oregon	15	12	10	14	51	5	46	56	51.9%	F
Pennsylvania	16	12	21	22	71	0	71	81	75.0%	C
Rhode Island	16	4	6	2	28	13	15	25	23.1%	F
South Carolina	24	12	23	20	79	1	78	88	81.5%	B
South Dakota	17	11	24	19	71	1	70	80	74.1%	C
Tennessee	16	8	13	3	40	2	38	48	44.4%	F
Texas	24	12	24	21	81	7	74	84	77.8%	B
Utah	15	11	21	21	68	7	61	71	65.7%	C
Vermont	28	3	12	10	53	5	48	58	53.7%	D
Virginia	29	12	20	19	80	C	80	90	83.3%	B
Washington	17	12	19	15	63	13	50	60	55.6%	D
West Virginia	27	7	21	23	78	0	78	88	81.5%	B
Wisconsin	24	12	27	23	86	0	86	96	88.9%	A
Wyoming	14	10	13	19	56	0	56	66	61.1%	D

* The final sum for a state reflects its totals for sections A, B, C, and D, minus the total for section E. The maximum any state could earn for sections A, B, C, and D together was 108. The maximum negative points a state could earn for section E was 28. Thus, a "perfect" state earning all possible points for A, B, C, and D and none for E, would have a sum of 108. (The points for the negative criteria are subtracted because they represent negative tendencies or features in a standards document and by their nature detract from or counter the positive features in that document.) States with standards were then given 10 additional points simply for having standards, and those adjusted scores (still out of 108 possible points) were converted first to percentages and then to letter grades, using this scale: A: 88-100%; B: 76-87.9%; C: 64-75.9%; D: 52-63.9%; F: 0-51.9%. (We recognize that giving states extra points for having standards may seem strange in 2000 when nearly every state has some. It was justified, however, in 1997 when fewer states had standards. In the interests of consistency and comparability, we chose to use the same grading scale both times.)

Appendix B: History Criteria and Detailed Grades

The History standards appraisal employed 15 criteria in five categories. To read an explanation of the criteria and other supporting materials, see David Warren Saxe, *State History Standards: An Appraisal of History Standards in 37 States and the District of Columbia*, February 1998, on-line at www.edexcellence.net.

Standards were analyzed by Dr. Saxe. A four-point rating scale was used:

3 = criterion fully met at each level (elementary, middle, high school)
2 = criterion met in at least two of three levels
1 = criterion met at only one level
0 = criterion not met
? = impossible to tell whether a criterion was met (for purposes of scoring, a "?" was the same as a zero)

After raw scores and frequency scores were added, a total of 60 points was available. Raw scores are the actual points earned against the 15 criteria. Frequency scores are used to judge how often a state met or partially met each of the 15 criteria. These were converted to letter grades, which also carry descriptive values indicating the utility of a state's standards.

A = "exemplary"
B = "notable"
C = "useful"
D = "marginally useful"
F = "useless"

A. Clarity: How well are the standards written?

1. Standards are clear and measurable.
2. Standards describe what is to be taught and learned.
3. Standards are coherent and demanding.
4. Students are expected to learn important and specific facts, events, individuals, and issues.

B. Organization: How are standards organized and linked to state assessments?

5. Standards are presented on a grade-by-grade basis.
6. State history tests are (or could be) based on the standards.

C. Historical Soundness: What is the nature and quality of history found in the standards?

7. History is based on chronology.
8. Standards reflect solid, warranted historical knowledge.
9. History is kept in context and standards avoid presentism.
10. Students are encouraged to develop and apply historical skills.
11. Students are encouraged to understand and use primary and secondary sources.

D. Historical Content: Are specific studies of United States, European, and world history found in the standards?

12. Standards include specific studies in United States history.
13. Standards include specific studies in European and world history.

E. Absence of Manipulation: Do standards avoid manipulation, bias, indoctrination, and/or inappropriate applications of history?

14. Standards avoid promoting political or social dogma.
15. Standards avoid manipulating student feelings or attitudes.

Table B1. Raw Scores for All Criteria

State	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	Total
Alabama	3	3	2	2	3	3	3	3	2	3	2	3	2	?	?	34
Alaska	0	1	0	0	1	?	?	0	?	1	0	0	0	0	0	3
Arizona	3	3	3	3	2	1	3	3	3	3	3	3	3	3	3	42
Arkansas	0	1	0	0	0	?	0	0	?	0	0	0	0	?	?	1
California	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	45
Colorado	0	1	0	1	2	?	1	0	?	0	3	1	1	1	1	12
Connecticut	0	2	2	0	0	0	0	0	?	3	3	1	1	?	?	12
Delaware	1	1	0	0	0	3	2	?	?	3	3	0	0	3	?	16
District of Columbia	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	6
Florida	0	2	3	0	2	0	0	0	?	3	3	3	3	?	?	19
Georgia	2	2	2	1	2	1	1	2	?	3	?	3	1	?	?	20
Hawaii	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Idaho	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Illinois	1	1	1	1	0	?	?	0	0	3	0	1	1	?	?	9
Indiana	1	1	1	2	3	?	2	1	1	1	0	2	1	1	1	18
Iowa	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kansas	3	3	3	3	2	3	3	3	3	2	1	3	3	2	?	37
Kentucky	0	0	1	0	1	3	0	?	0	3	3	1	1	0	0	13
Louisiana	1	1	1	1	1	3	2	3	?	3	3	1	1	?	?	21
Maine	0	2	0	1	3	?	0	1	?	2	2	1	0	?	?	12
Maryland	3	3	3	1	0	2	3	2	3	3	3	3	2	2	2	35
Massachusetts	2	2	2	2	1	3	2	3	2	3	2	3	3	2	2	34
Michigan	1	2	0	0	0	3	0	0	?	2	2	0	0	?	?	10
Minnesota	0	0	0	0	0	?	0	0	?	1	1	0	0	?	?	2
Mississippi	2	1	0	1	3	1	0	0	?	2	2	2	1	1	?	16
Missouri	3	3	3	0	0	3	0	0	?	3	3	2	3	?	?	23
Montana	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nebraska	3	3	3	3	0	3	0	0	?	3	3	3	2	?	?	26
Nevada	2	2	3	1	0	3	2	3	2	3	0	2	0	?	?	23
New Hampshire	1	2	1	0	0	2	2	2	?	3	1	1	1	?	?	16
New Jersey	0	0	0	0	0	2	0	0	0	1	1	1	1	0	0	6
New Mexico	0	1	0	0	0	?	0	0	?	0	0	0	0	?	?	1
New York	1	0	?	1	3	1	1	1	?	2	1	1	1	0	0	13
North Carolina	0	1	0	0	3	?	1	1	?	1	1	1	1	?	?	10
North Dakota	0	0	1	0	3	0	?	0	0	3	3	0	0	?	?	10
Ohio	1	1	1	1	3	?	0	0	1	0	0	0	0	1	1	10
Oklahoma	3	3	3	3	3	3	3	3	0	1	2	2	2	?	?	31
Oregon	2	3	3	3	0	3	1	1	0	3	1	2	2	2	?	26
Pennsylvania	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Carolina	0	1	2	1	3	3	0	1	1	1	1	1	1	?	?	16
South Dakota	2	2	3	2	2	0	?	2	2	0	0	2	1	1	1	20
Tennessee	0	1	0	0	1	3	1	1	?	1	2	1	1	?	?	12
Texas	3	3	3	2	2	3	?	2	2	3	3	2	1	?	?	29
Utah	1	1	1	1	3	?	1	?	1	1	1	1	1	0	1	14
Vermont	0	0	0	1	0	3	?	?	?	1	?	1	0	0	0	6
Virginia	3	3	3	3	3	3	3	3	3	3	2	3	3	3	3	44
Washington	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	4
West Virginia	1	2	1	1	2	3	1	1	1	1	1	1	1	?	?	17
Wisconsin	0	1	0	0	0	1	0	?	?	3	3	0	0	?	?	8
Wyoming	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1998, at which time they were reviewed and graded by the Foundation and its reviewers. They were not reviewed a second time for this report.

Table B2. Raw Scores Grouped by Cluster

State	Clarity (Max=12)	Organization (Max=6)	History (Max=15)	US/World Content (Max=6)	Absence of Manipulation (Max=6)	Total Points (Max=45)
Alabama	10	6	13	5	0	34
Alaska	1	2	0	0	0	3
Arizona	12	3	15	6	6	42
Arkansas	1	0	0	0	0	1
California	12	6	15	6	6	45
Colorado	2	2	4	2	2	12
Connecticut	4	0	6	2	0	12
Delaware	2	3	8	0	3	16
District of Columbia	0	0	6	0	0	6
Florida	5	2	6	6	0	19
Georgia	7	3	6	4	0	20
Hawaii	0	1	0	0	0	1
Idaho	-	-	-	-	-	-
Illinois	1	0	3	2	0	9
Indiana	5	3	5	3	2	18
Iowa	-	-	-	-	-	-
Kansas	12	5	12	6	2	37
Kentucky	1	4	6	2	0	13
Louisiana	4	4	11	2	0	21
Maine	3	3	5	1	0	12
Maryland	10	2	14	5	4	35
Massachusetts	8	4	12	6	4	34
Michigan	3	3	4	0	0	10
Minnesota	0	0	2	0	0	2
Mississippi	4	4	4	3	1	16
Missouri	9	3	6	5	0	23
Montana	-	-	-	-	-	-
Nebraska	12	3	6	5	0	26
Nevada	8	3	10	2	0	23
New Hampshire	4	2	8	2	0	16
New Jersey	0	2	2	2	0	6
New Mexico	1	0	0	0	0	1
New York	4	4	7	5	0	20
North Carolina	1	3	6	0	0	10
North Dakota	1	3	6	0	0	10
Ohio	4	3	1	0	2	10
Oklahoma	12	6	9	4	0	31
Oregon	11	3	6	4	2	26
Pennsylvania	0	0	0	0	0	0
Rhode Island	-	-	-	-	-	-
South Carolina	4	6	4	2	0	16
South Dakota	9	2	4	3	2	20
Tennessee	1	4	5	2	0	12
Texas	11	5	10	3	0	29
Utah	4	3	4	2	1	14
Vermont	1	3	1	1	0	6
Virginia	12	6	14	6	6	44
Washington	0	0	4	0	0	4
West Virginia	5	5	5	2	0	17
Wisconsin	1	1	6	0	0	8
Wyoming	0	0	1	0	0	1

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1998, at which time they were reviewed and graded by the Foundation and its reviewers. They were not reviewed a second time for this report.

Table B3. State Frequency Scores

STATE (alphabetical)	(Maximum Score = 15)
Alabama	13
Alaska	3
Arizona	15
Arkansas	1
California	15
Colorado	9
Connecticut	6
Delaware	7
District of Columbia	2
Florida	7
Georgia	11
Hawaii	1
Idaho	-
Illinois	7
Indiana	14
Iowa	-
Kansas	14
Kentucky	7
Louisiana	12
Maine	7
Maryland	14
Massachusetts	15
Michigan	5
Minnesota	2
Mississippi	10
Missouri	8
Montana	-
Nebraska	9
Nevada	10
New Hampshire	10
New Jersey	5
New Mexico	1
New York	12
North Carolina	8
North Dakota	4
Ohio	8
Oklahoma	12
Oregon	12
Pennsylvania	0
Rhode Island	-
South Carolina	11
South Dakota	11
Tennessee	9
Texas	12
Utah	12
Vermont	4
Virginia	15
Washington	3
West Virginia	13
Wisconsin	3
Wyoming	1

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1998, at which time they were reviewed and graded by the Foundation and its reviewers. They were not reviewed a second time for this report.

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Table B4: Rank Order of States by Final Grade

State (in rank order)	Raw + Frequency = Total Score	Final Grade*	Utility
California	45 + 15 = 60	A	Exemplary
Virginia	44 + 15 = 59	A	Exemplary
Arizona	42 + 15 = 57	A	Exemplary
Kansas	37 + 14 = 51	B	Notable
Maryland	35 + 14 = 49	B	Notable
Massachusetts	34 + 15 = 49	B	Notable
Alabama	34 + 13 = 47	B	Notable
Oklahoma	31 + 12 = 43	B	Notable
Texas	29 + 12 = 41	B	Notable
Oregon	26 + 12 = 38	B	Notable
Nebraska	26 + 9 = 35	C	Useful
Louisiana	21 + 12 = 33	C	Useful
Nevada	23 + 10 = 33	C	Useful
Indiana	18 + 14 = 32	C	Useful
Georgia	20 + 11 = 31	C	Useful
Missouri	23 + 8 = 31	C	Useful
South Dakota	20 + 11 = 31	C	Useful
West Virginia	17 + 13 = 30	C	Useful
South Carolina	16 + 11 = 27	C	Useful
Florida	19 + 7 = 26	C	Useful
Mississippi	16 + 10 = 26	C	Useful
New Hampshire	16 + 10 = 26	C	Useful
Utah	14 + 12 = 26	C	Useful
New York	13 + 12 = 25	D	Marginally Useful
Delaware	16 + 7 = 23	D	Marginally Useful
Colorado	12 + 9 = 21	D	Marginally Useful
Tennessee	12 + 9 = 21	D	Marginally Useful
Kentucky	13 + 7 = 20	D	Marginally Useful
Maine	12 + 7 = 19	D	Marginally Useful
Connecticut	12 + 6 = 18	D	Marginally Useful
North Carolina	10 + 8 = 18	D	Marginally Useful
Ohio	10 + 8 = 18	D	Marginally Useful
Illinois	9 + 7 = 16	F	Useless
North Dakota	10 + 4 = 14	F	Useless
Michigan	10 + 5 = 15	F	Useless
New Jersey	6 + 5 = 11	F	Useless
Wisconsin	8 + 3 = 11	F	Useless
Vermont	6 + 4 = 10	F	Useless
District of Columbia	6 + 2 = 8	F	Useless
Washington	4 + 3 = 7	F	Useless
Alaska	3 + 3 = 6	F	Useless
Minnesota	2 + 2 = 4	F	Useless
Arkansas	1 + 1 = 2	F	Useless
Hawaii	1 + 1 = 2	F	Useless
New Mexico	1 + 1 = 2	F	Useless
Wyoming	1 + 1 = 2	F	Useless
Pennsylvania	0 + 0 = 0	F	Useless
Idaho	-	-	-
Iowa	-	-	-
Montana	-	-	-
Rhode Island	-	-	-

* Total scores are converted to letter grades using this scale: A: 56-60, B: 36-55, C: 26-34, D: 17-25, F: 0-16

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1998, at which time they were reviewed and graded by the Foundation and its reviewers. They were not reviewed a second time for this report.

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Appendix C: Geography Criteria and Detailed Grades

The geography standards appraisal gave scores for two categories: 1) general characteristics, and 2) comprehensiveness and rigor. To read an explanation of the criteria and other supporting materials, see Susan Munroe and Terry Smith, *State Geography Standards: An Appraisal of Geography Standards in 38 States and the District of Columbia*, February 1998, on-line at www.edexcellence.net.

General Characteristics

Standards were first judged against six general criteria that are not specific to geography but contribute to the likelihood that standards will be understood and used.

1. Standards are clearly written and jargon-free.
2. Standards are specific regarding the knowledge and skills students must learn and use.
3. Standards are balanced such that they do not attempt to sway students towards any particular moral or social point of view.
4. Standards employ strong verbs such as analyze, compare, demonstrate, describe, evaluate, explain, identify, illustrate, locate, make, trace, utilize, etc.
5. Standards incorporate benchmarks—specific activities by which students may demonstrate their mastery of the standard.
6. Standards offer guidance to teachers in developing curriculum activities, classroom materials, and instructional methods.

Scoring Rubric for General Characteristics

We developed a four-point scale to appraise these six general characteristics within each state's standards. A scale of 0-3 measured the frequency of occurrence of each desired characteristic:

0 = the standards *virtually never* embody the desired characteristic
1 = the standards *sometimes* embody the desired characteristic
2 = the standards *often* embody the desired characteristic
3 = the standards *nearly always* embody the desired characteristic
(18 = maximum score)

Comprehensiveness and Rigor

Standards were judged in each of three grade clusters (Pre-K-4, 5-8, and 9-12) for the comprehensiveness and rigor with which they present the essential content, skills, and applications of geography and for their overall organization. Evaluators used the same criteria for each grade cluster but looked for increasingly advanced material as they progressed to higher grades.

Geography Content (Five Criteria)

1. *The World in Spatial Terms (fundamentals of geography):* characteristics and uses of maps (including mental maps) and other geographic representations, tools, and technologies; knowledge of Earth to locate people, places, and environments; knowledge of geographic vocabulary and concepts necessary for analysis of spatial organization of people, places, and environments on Earth's surface.
2. *Places and Regions:* the physical and human characteristics of places; the fact that people create regions to interpret Earth's complexity; the way culture and experience influence people's perceptions of places and regions.
3. *Physical Systems:* the physical processes that shape the patterns of Earth's surface; the characteristics and distribution of ecosystems on Earth's surface.
4. *Human Systems:* the characteristics, distribution, and migration of human populations; the characteristics, distribution, and complexity of Earth's cultures; the patterns and networks of economic interdependence; the processes, patterns, and functions of human settlement; the way forces of cooperation and conflict among people influence the division and control of Earth's surface.
5. *Environment and Society:* the way human actions modify the physical environment; the way physical systems affect human systems; the changes that occur in the meaning, use, distribution, and importance of resources.

Geography Skills (One Criterion)

1. *Skills of Geographic Analysis (higher order use of basic geography knowledge):* asking and answering geographic questions; acquiring, organizing, analyzing, and presenting geographic information; developing and testing geographic generalizations.

Geography Applications (One Criterion)

1. *Applications of Geography*: applying geographic perspectives to interpret the past and the present, and to plan for the future.

Overall Organization (One Criterion)

1. *Overall Organization:* presentation of a continuum of content knowledge, skills, and applications within the grade cluster.

Scoring Rubric for Comprehensiveness and Rigor

These eight criteria were scored on a scale of 0-3 that gives a general estimate of the quantity and quality of geography content, skills, applications, and organization.

0 = Essential material is *not* covered
1 = Essential material is *partially* covered
2 = Essential material is *mostly* covered
3 = Essential material is *very well* covered
(24 = maximum score for each grade cluster; 72 = maximum score for comprehensiveness and rigor.)

Table C1. Scoring Summary

State	General Characteristics	COMPREHENSIVENESS & RIGOR					Grade
		Grades K-4	Grades 5-8	Grades 9-12	Total Score	Final Score*	
Alabama	16.0	22.0	21.0	11.0	54.0	70.0	B
Alaska	*15.0*	*21.0*	*14.0*	*14.0*	*49.0*	*64.0*	*C*
Arizona	16.0	18.0	22.0	22.0	62.0	78.0	B
Arkansas	*9.0*	*5.0*	*5.0*	*4.0*	*14.0*	*23.0*	*F*
California	13.0	18.0	19.0	16.0	53.0	66.0	C
Colorado	18.0	24.0	24.0	24.0	72.0	90.0	A
Connecticut	11.0	17.0	14.0	10.0	41.0	52.0	D
Delaware	17.0	18.0	12.0	17.0	47.0	64.0	C
District of Columbia	17.0	20.0	22.0	22.0	64.0	81.0	A
Florida	18.0	17.0	20.0	17.5	54.5	72.5	B
Georgia	18.0	12.0	15.0	13.0	40.0	58.0	D
Hawaii	9.0	8.0	8.0	8.0	24.0	33.0	F
Idaho	-	-	-	-	-	-	-
Illinois	*11.0*	*15.5*	*11.5*	*13.5*	*40.5*	*51.5*	*D*
Indiana	*17.5*	*22.5*	*22.0*	*23.0*	*67.5*	*85.0*	*A*
Iowa	-	-	-	-	-	-	-
Kansas	18.0	21.0	20.0	21.0	62.0	80.0	A
Kentucky	10.0	8.0	10.0	30.0	30.0	40.0	F
Louisiana	18.0	21.0	24.0	20.0	65.0	83.0	A
Maine	*14.0*	*7.0*	*5.0*	*4.5*	*16.5*	*30.5*	*F*
Maryland	17.0	18.0	17.0	18.0	53.0	70.0	B
Massachusetts	*14.0*	*12.0*	*12.5*	*11.5*	*36.0*	*50.0*	*D*
Michigan	*17.5*	*21.0*	*21.0*	*19.5*	*61.5*	*79.0*	*B*
Minnesota	*9.0*	*5.0*	*5.0*	*3.0*	*13.0*	*22.0*	*F*
Mississippi	14.0	10.0	13.0	16.0	39.0	53.0	D
Missouri	15.0	18.0	18.0	19.0	55.0	70.0	B
Montana	-	-	-	-	-	-	-
Nebraska	12.0	9.0	9.0	13.0	31.0	43.0	F
Nevada	14.0	18.0	21.0	16.0	55.0	69.0	C
New Hampshire	*14.5*	*21.5*	*20.5*	*19.5*	*61.5*	*76.0*	*B*
New Jersey	16.0	13.0	11.0	10.0	34.0	50.0	D
New Mexico	*13.0*	*10.0*	*8.5*	*9.5*	*28.0*	*41.0*	*F*
New York	15.0	13.0	15.0	15.0	43.0	58.0	D
North Carolina	*16.0*	*16.5*	*15.0*	*17.5*	*49.0*	*65.0*	*C*
North Dakota	7.0	8.0	11.0	10.0	29.0	36.0	F
Ohio	*14.0*	*14.0*	*14.5*	*11.5*	*40.0*	*54.0*	*D*
Oklahoma	13.0	11.0	18.0	20.0	49.0	62.0	C
Oregon	11.0	6.0	13.0	12.0	31.0	42.0	F
Pennsylvania	-	-	-	-	-	-	-
Rhode Island	-	-	-	-	-	-	-
South Carolina	16.0	20.0	24.0	23.0	67.0	83.0	A
South Dakota	14.0	9.0	19.0	20.0	48.0	62.0	C
Tennessee	*9.5*	*10.5*	*9.5*	*10.5*	*30.5*	*40.0*	*F*
Texas	*16.0*	*18.5*	*22.0*	*24.0*	*64.5*	*80.5*	*A*
Utah	*15.5*	*13.0*	*15.0*	*23.0*	*51.0*	*66.5*	*C*
Vermont	8.0	6.0	7.0	6.0	20.0	28.0	F
Virginia	*15.5*	*15.0*	*12.0*	*16.5*	*43.5*	*59.0*	*D*
Washington	*8.5*	*9.0*	*7.5*	*9.0*	*25.5*	*34.0*	*F*
West Virginia	*16.5*	*16.5*	*21.5*	*17.5*	*55.5*	*72.0*	*B*
Wisconsin	*5.0*	*8.0*	*9.0*	*9.0*	*26.0*	*31.0*	*F*
Wyoming	13.0	5.0	3.0	5.0	13.0	26.0	F
	Max. Possible = 18	Max. Possible = 24	Max. Possible = 24	Max. Possible = 24	Max. Possible = 72	Max. Possible = 90	

* Final scores are converted to letter grades using this scale: A: 80-90; B: 70-79; C: 60-69; D: 50-59; F: 0-49.

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Table C2. General Characteristics of Standards (Maximum Possible = 18)

State	Clearly Written	Specificity	Balanced	Strong Verbs	Benchmarks	Guidance	State Totals
Alabama	3.0	3.0	3.0	2.0	2.0	3.0	16.0
Alaska	*3.0*	*2.0*	*3.0*	*2.0*	*2.0*	*3.0*	*15.0*
Arizona	3.0	2.0	3.0	3.0	2.0	3.0	16.0
Arkansas	*2.0*	*1.0*	*3.0*	*2.0*	*1.0*	*0.0*	*9.0*
California	3.0	1.0	3.0	2.0	1.0	3.0	13.0
Colorado	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*18.0*
Connecticut	2.0	1.0	3.0	3.0	1.0	1.0	11.0
Delaware	*3.0*	*3.0*	*3.0*	*3.0*	*2.0*	*3.0*	*17.0*
District of Columbia	2.0	3.0	3.0	3.0	3.0	3.0	17.0
Florida	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*3.0*	*18.0*
Georgia	3.0	3.0	3.0	3.0	3.0	3.0	18.0
Hawaii	*3.0*	*0.0*	*2.0*	*2.0*	*0.0*	*2.0*	*9.0*
Idaho	-	-	-	-	-	-	-
Illinois	*1.0*	*2.0*	*3.0*	*3.0*	*1.0*	*1.0*	*11.0*
Indiana	3.0	3.0	2.5	3.0	3.0	3.0	17.5
Iowa	-	-	-	-	-	-	-
Kansas	3.0	3.0	3.0	3.0	3.0	3.0	18.0
Kentucky	*2.0*	*1.0*	*2.0*	*3.0*	*1.0*	*1.0*	*10.0*
Louisiana	3.0	3.0	3.0	3.0	3.0	3.0	18.0
Maine	*3.0*	*2.5*	*3.0*	*2.5*	*2.5*	*0.5*	*14.0*
Maryland	3.0	3.0	3.0	3.0	2.0	3.0	17.0
Massachusetts	*3.0*	*2.0*	*3.0*	*2.0*	*2.0*	*2.0*	*14.0*
Michigan	3.0	3.0	2.5	3.0	3.0	3.0	17.5
Minnesota	*2.0*	*1.0*	*2.0*	*2.0*	*1.0*	*1.0*	*9.0*
Mississippi	2.0	1.0	3.0	2.0	3.0	3.0	14.0
Missouri	*3.0*	*2.0*	*3.0*	*3.0*	*2.0*	*2.0*	*15.0*
Montana	-	-	-	-	-	-	-
Nebraska	*3.0*	*1.0*	*3.0*	*3.0*	*1.0*	*1.0*	*12.0*
Nevada	3.0	2.0	2.0	3.0	2.0	2.0	14.0
New Hampshire	*3.0*	*2.0*	*2.0*	*3.0*	*1.5*	*3.0*	*14.5*
New Jersey	3.0	2.0	3.0	3.0	2.0	3.0	16.0
New Mexico	*2.0*	*2.0*	*3.0*	*3.0*	*2.0*	*1.0*	*13.0*
New York	3.0	2.0	3.0	3.0	1.0	3.0	15.0
North Carolina	*2.5*	*3.0*	*2.0*	*3.0*	*3.0*	*2.5*	*16.0*
North Dakota	1.0	1.0	3.0	1.0	1.0	0.0	7.0
Ohio	*3.0*	*2.0*	*2.0*	*3.0*	*2.0*	*2.0*	*14.0*
Oklahoma	3.0	2.0	2.0	3.0	1.0	2.0	13.0
Oregon	*2.0*	*1.0*	*3.0*	*3.0*	*1.0*	*1.0*	*11.0*
Pennsylvania	-	-	-	-	-	-	-
Rhode Island	-	-	-	-	-	-	-
South Carolina	3.0	3.0	3.0	3.0	1.0	3.0	16.0
South Dakota	*2.0*	*2.0*	*3.0*	*3.0*	*2.0*	*2.0*	*14.0*
Tennessee	2.0	1.0	2.5	2.0	1.0	1.0	9.5
Texas	*3.0*	*3.0*	*3.0*	*3.0*	*2.0*	*2.0*	*16.0*
Utah	3.0	2.0	3.0	3.0	2.0	2.5	15.5
Vermont	*3.0*	*1.0*	*1.0*	*2.0*	*1.0*	*0.0*	*8.0*
Virginia	3.0	2.0	3.0	3.0	2.0	2.5	15.5
Washington	*2.5*	*1.5*	*2.0*	*1.5*	*0.0*	*1.0*	*8.5*
West Virginia	3.0	3.0	3.0	3.0	3.0	1.5	16.5
Wisconsin	*1.0*	*1.0*	*1.0*	*1.0*	*1.0*	*0.0*	*5.0*
Wyoming	2.0	2.0	3.0	3.0	3.0	0.0	13.0
Average	**2.61**	**2.02**	**2.68**	**2.65**	**1.85**	**1.99**	**13.80**

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Table C3: Comprehensiveness and Rigor, Grades K-4 (Maximum Possible = 24)

State	Spatial Terms	Places & Regions	Physical Systems	Human Systems	Env. & Society	Skills	Applications	Organization	Total
Alabama	3.0	2.0	2.0	3.0	3.0	3.0	3.0	3.0	22.0
Alaska	2.0	3.0	2.0	2.5	3.0	2.5	3.0	3.0	21.0
Arizona	3.0	3.0	0.0	2.0	2.0	3.0	2.0	3.0	18.0
Arkansas	1.0	0.0	0.0	0.0	1.0	2.0	1.0	0.0	5.0
California	3.0	2.0	0.0	3.0	3.0	2.0	2.0	3.0	18.0
Colorado	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	24.0
Connecticut	2.0	2.0	3.0	3.0	2.0	2.0	1.0	2.0	17.0
Delaware	3.0	2.0	2.0	2.0	2.0	3.0	1.0	3.0	18.0
District of Columbia	3.0	2.0	2.0	3.0	3.0	3.0	2.0	2.0	20.0
Florida	3.0	3.0	0.0	2.0	3.0	2.0	1.0	3.0	17.0
Georgia	3.0	2.0	1.0	0.0	1.0	2.0	0.0	3.0	12.0
Hawaii	1.0	1.0	2.0	1.0	1.0	1.0	0.0	1.0	8.0
Idaho	-	-	-	-	-	-	-	-	-
Illinois	2.0	2.0	2.0	2.0	3.0	0.5	1.0	3.0	15.5
Indiana	3.0	3.0	2.5	3.0	2.0	3.0	3.0	3.0	22.5
Iowa	-	-	-	-	-	-	-	-	-
Kansas	3.0	2.0	3.0	3.0	3.0	2.0	2.0	3.0	21.0
Kentucky	1.0	1.0	0.0	1.0	2.0	1.0	1.0	1.0	8.0
Louisiana	3.0	3.0	2.0	3.0	2.0	3.0	2.0	3.0	21.0
Maine	1.0	1.0	1.5	1.0	1.0	0.5	0.0	1.0	7.0
Maryland	3.0	2.0	2.0	2.0	2.0	3.0	2.0	2.0	18.0
Massachusetts	2.5	1.0	1.5	1.5	1.5	1.0	1.0	2.0	12.0
Michigan	2.0	2.5	3.0	3.0	2.5	2.0	3.0	3.0	21.0
Minnesota	1.0	1.0	0.0	1.0	1.0	1.0	0.0	0.0	5.0
Mississippi	2.0	1.0	0.0	1.0	2.0	2.0	0.0	2.0	10.0
Missouri	3.0	3.0	2.0	2.0	1.0	2.0	2.0	3.0	18.0
Montana	-	-	-	-	-	-	-	-	-
Nebraska	2.0	1.0	1.0	1.0	0.0	1.0	1.0	2.0	9.0
Nevada	3.0	2.0	1.0	2.0	2.0	3.0	3.0	2.0	18.0
New Hampshire	3.0	3.0	3.0	3.0	3.0	2.5	2.0	2.0	21.5
New Jersey	3.0	2.0	0.0	3.0	2.0	2.0	0.0	1.0	13.0
New Mexico	1.0	1.0	1.5	1.5	1.0	1.0	1.0	2.0	10.0
New York	2.0	2.0	0.0	2.0	2.0	1.0	1.0	3.0	13.0
North Carolina	2.0	2.0	1.0	1.5	2.0	2.5	2.5	3.0	16.5
North Dakota	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	8.0
Ohio	3.0	2.0	1.0	1.0	1.5	1.5	1.0	3.0	14.0
Oklahoma	3.0	1.0	0.0	2.0	2.0	1.0	0.0	2.0	11.0
Oregon	1.0	1.0	0.0	1.0	1.0	1.0	0.0	1.0	6.0
Pennsylvania	-	-	-	-	-	-	-	-	-
Rhode Island	-	-	-	-	-	-	-	-	-
South Carolina	3.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	20.0
South Dakota	3.0	1.0	0.0	1.0	0.0	2.0	0.0	2.0	9.0
Tennessee	2.5	1.5	0.0	1.5	2.5	.5	.5	1.5	10.5
Texas	3.0	2.0	1.0	2.0	3.0	3.0	1.5	3.0	18.5
Utah	3.0	2.0	1.0	1.5	1.0	1.0	0.5	3.0	13.0
Vermont	2.0	1.0	0.0	2.0	0.0	1.0	0.0	0.0	6.0
Virginia	3.0	2.0	1.0	2.0	1.0	2.0	1.0	3.0	15.0
Washington	2.0	2.0	1.0	1.0	1.0	0.5	0.0	1.5	9.0
West Virginia	3.0	1.0	2.0	2.0	1.5	3.0	1.0	3.0	16.5
Wisconsin	2.0	0.0	1.0	0.0	2.0	1.0	1.0	1.0	8.0
Wyoming	2.0	1.0	0.0	0.0	0.0	1.0	0.0	1.0	5.0
Average	2.37	1.78	1.20	1.78	1.79	1.83	1.22	2.15	14.12

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1998, at which time they were reviewed and graded by the Foundation and its reviewers. They were not reviewed a second time for this report.

Table C4: Comprehensiveness and Rigor, Grades 5-8 (Maximum Possible = 24)

State	Spatial Terms	Places & Regions	Physical Systems	Human Systems	Env. & Society	Skills	Applications	Organization	Total
Alabama	3.0	2.0	2.0	3.0	3.0	2.0	3.0	3.0	21.00
Alaska	2.0	2.0	2.0	1.5	1.5	2.0	2.0	1.0	14.00
Arizona	3.0	3.0	3.0	3.0	3.0	2.0	2.0	3.0	22.00
Arkansas	1.0	0.0	0.0	1.0	0.0	2.0	1.0	0.0	5.00
California	3.0	3.0	0.0	3.0	2.0	3.0	2.0	3.0	19.00
Colorado	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	24.00
Connecticut	2.0	3.0	2.0	1.0	1.0	2.0	1.0	2.0	14.00
Delaware	2.0	1.0	1.0	1.0	2.0	2.0	1.0	2.0	12.00
District of Columbia	3.0	2.0	3.0	3.0	3.0	3.0	2.0	3.0	22.00
Florida	3.0	3.0	0.0	3.0	3.0	3.0	2.0	3.0	20.00
Georgia	2.0	2.0	1.0	2.0	1.0	2.0	2.0	3.0	15.00
Hawaii	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	8.00
Idaho	-	-	-	-	-	-	-	-	-
Illinois	1.0	1.0	2.0	1.5	2.0	2.0	0.5	1.5	11.50
Indiana	3.0	3.0	2.0	3.0	2.5	3.0	2.5	3.0	22.00
Iowa	-	-	-	-	-	-	-	-	-
Kansas	2.0	3.0	3.0	3.0	2.0	2.0	2.0	3.0	20.00
Kentucky	1.0	2.0	0.0	2.0	2.0	1.0	1.0	1.0	10.00
Louisiana	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	24.00
Maine	1.0	1.0	0.5	1.0	0.5	0.0	0.0	1.0	5.00
Maryland	1.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	17.00
Massachusetts	2.0	0.5	1.0	2.0	2.5	1.0	1.5	2.0	12.50
Michigan	2.0	3.0	2.5	3.0	3.0	2.0	2.5	3.0	21.00
Minnesota	1.0	1.0	0.0	1.0	0.0	1.0	1.0	0.0	5.00
Mississippi	3.0	1.0	1.0	2.0	1.0	2.0	2.0	1.0	13.00
Missouri	2.0	2.0	2.0	2.0	3.0	2.0	2.0	3.0	18.00
Montana	-	-	-	-	-	-	-	-	-
Nebraska	1.0	1.0	0.0	2.0	0.0	1.0	2.0	2.0	9.00
Nevada	3.0	2.0	3.0	2.0	3.0	3.0	3.0	2.0	21.00
New Hampshire	2.0	3.0	3.0	3.0	2.5	2.5	2.5	2.0	20.50
New Jersey	2.0	1.0	0.0	2.0	2.0	2.0	1.0	1.0	11.00
New Mexico	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.5	8.50
New York	2.0	2.0	1.0	3.0	3.0	1.0	0.0	3.0	15.00
North Carolina	1.0	2.0	0.0	2.0	2.0	2.5	2.5	3.0	15.00
North Dakota	2.0	1.0	2.0	2.0	1.0	1.0	1.0	1.0	11.00
Ohio	3.0	2.5	1.0	2.0	1.0	1.5	0.5	3.0	14.50
Oklahoma	2.0	2.0	2.0	3.0	3.0	2.0	2.0	2.0	18.00
Oregon	2.0	2.0	1.0	2.0	2.0	1.0	2.0	1.0	13.00
Pennsylvania	-	-	-	-	-	-	-	-	-
Rhode Island	-	-	-	-	-	-	-	-	-
South Carolina	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	24.00
South Dakota	2.0	3.0	3.0	3.0	2.0	2.0	2.0	2.0	19.00
Tennessee	1.0	2.0	2.0	1.5	1.5	0.0	0.0	1.5	9.50
Texas	2.5	3.0	2.0	3.0	3.0	3.0	2.5	3.0	22.00
Utah	2.0	2.0	1.5	1.5	1.5	2.0	1.5	3.0	15.00
Vermont	1.0	1.0	1.0	2.0	0.0	1.0	1.0	0.0	7.00
Virginia	1.5	1.0	1.5	2.0	0.5	1.5	1.0	3.0	12.00
Washington	1.0	1.5	0.0	1.0	1.0	1.5	0.0	1.5	7.50
West Virginia	3.0	2.5	2.0	3.0	2.5	3.0	2.5	3.0	21.50
Wisconsin	2.0	0.0	1.0	1.0	2.0	1.0	1.0	1.0	9.00
Wyoming	1.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	3.00
Average	**1.98**	**1.87**	**1.48**	**2.11**	**1.84**	**1.86**	**1.64**	**2.04**	**14.86**

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1998, at which time they were reviewed and graded by the Foundation and its reviewers. They were not reviewed a second time for this report.

156

Table C5: Comprehensiveness and Rigor, Grades 9-12 (Maximum Possible = 24)

State	Spatial Terms	Places & Regions	Physical Systems	Human Systems	Env. & Society	Skills	Applications	Organization	Total
Alabama	1.0	1.0	0.0	2.0	1.0	1.0	3.0	2.0	11.0
Alaska	2.0	1.5	2.0	2.0	1.5	2.0	2.0	1.0	14.0
Arizona	2.0	3.0	3.0	3.0	2.0	3.0	3.0	3.0	22.0
Arkansas	0.0	0.0	0.0	1.0	0.0	2.0	1.0	0.0	4.0
California	1.0	2.0	0.0	3.0	2.0	2.0	3.0	3.0	16.0
Colorado	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	24.0
Connecticut	1.0	3.0	2.0	1.0	1.0	1.0	0.0	1.0	10.0
Delaware	2.0	2.0	2.0	3.0	2.0	2.0	2.0	2.0	17.0
District of Columbia	2.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	22.0
Florida	2.5	3.0	0.0	2.0	3.0	2.0	2.0	3.0	17.5
Georgia	1.0	3.0	0.0	2.0	1.0	2.0	1.0	3.0	13.0
Hawaii	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	8.0
Idaho	-	-	-	-	-	-	-	-	-
Illinois	1.5	0.5	2.0	2.0	1.5	2.0	2.0	2.0	13.5
Indiana	3.0	3.0	2.5	3.0	2.5	3.0	3.0	3.0	23.0
Iowa	-	-	-	-	-	-	-	-	-
Kansas	2.0	3.0	3.0	1.0	3.0	3.0	3.0	3.0	21.0
Kentucky	1.0	2.0	0.0	2.0	2.0	2.0	2.0	1.0	12.0
Louisiana	1.0	3.0	2.0	3.0	2.0	3.0	3.0	3.0	20.0
Maine	1.0	1.0	0.0	1.0	0.0	0.5	0.0	1.0	4.5
Maryland	1.0	2.0	2.0	3.0	3.0	2.0	3.0	2.0	18.0
Massachusetts	1.5	1.0	0.5	1.5	1.5	1.5	1.5	2.5	11.5
Michigan	1.0	3.0	1.5	2.5	2.5	3.0	3.0	3.0	19.5
Minnesota	1.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	3.0
Mississippi	2.0	2.0	2.0	2.0	2.0	2.0	1.0	3.0	16.0
Missouri	2.0	3.0	2.0	2.0	2.0	3.0	2.0	3.0	19.0
Montana	-	-	-	-	-	-	-	-	-
Nebraska	1.0	1.0	0.0	2.0	1.0	3.0	3.0	2.0	13.0
Nevada	1.0	3.0	1.0	1.0	2.0	3.0	3.0	2.0	16.0
New Hampshire	2.0	2.5	3.0	3.0	2.0	2.0	3.0	2.0	19.5
New Jersey	1.0	1.0	0.0	1.0	2.0	2.0	2.0	1.0	10.0
New Mexico	1.0	1.0	1.0	1.5	1.0	1.0	1.5	1.5	9.5
New York	1.0	2.0	1.0	2.0	1.0	3.0	2.0	3.0	15.0
North Carolina	1.5	2.5	0.5	3.0	2.0	2.5	2.5	3.0	17.5
North Dakota	1.0	1.0	2.0	2.0	1.0	1.0	1.0	1.0	10.0
Ohio	1.0	1.5	0.0	1.0	1.5	1.5	2.0	3.0	11.5
Oklahoma	2.0	2.0	2.0	3.0	3.0	2.0	3.0	3.0	20.0
Oregon	1.0	2.0	0.0	2.0	2.0	2.0	2.0	1.0	12.0
Pennsylvania	-	-	-	-	-	-	-	-	-
Rhode Island	-	-	-	-	-	-	-	-	-
South Carolina	2.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	23.0
South Dakota	3.0	3.0	2.0	3.0	2.0	2.0	3.0	2.0	20.0
Tennessee	1.0	1.0	2.0	1.0	2.0	1.0	1.5	1.0	10.5
Texas	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	24.0
Utah	3.0	2.5	3.0	2.5	3.0	3.0	3.0	3.0	23.0
Vermont	2.0	0.0	0.0	1.0	0.0	2.0	2.0	0.0	7.0
Virginia	1.0	2.0	1.0	3.0	2.0	2.0	2.5	3.0	16.5
Washington	0.5	1.5	1.0	1.0	1.5	1.5	0.5	1.5	9.0
West Virginia	2.0	1.5	1.5	2.0	2.0	3.0	3.0	2.5	17.5
Wisconsin	1.0	1.0	1.0	1.0	1.0	2.0	1.0	1.0	9.0
Wyoming	1.0	1.0	0.0	0.0	1.0	1.0	0.0	1.0	5.0
Average	**1.51**	**1.91**	**1.34**	**1.98**	**1.77**	**2.10**	**2.07**	**2.07**	**14.74**

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1998, at which time they were reviewed and graded by the Foundation and its reviewers. They were not reviewed a second time for this report.

Appendix D: Mathematics Criteria and Detailed Grades

The math standards appraisal employed nine indicators in four groups. To read an explanation of the criteria and other supporting materials, see Ralph A. Raimi and Lawrence S. Braden, *State Mathematics Standards: An Appraisal of Math Standards in 46 States, the District of Columbia, and Japan*, March 1998, on-line at www.edexcellence.net.

There are nine scores (of 0 to 4) for each state, but for evaluation purposes there are but four Categories, I, II, III, and IV (as described below), for each of which an average is struck before the four averages are added for a total score for the state. That is, we are weighting equally each of the criteria—Clarity, Content, Reason, and Negative Qualities—even though some are split into more subheads than others. Thus, 16 is the highest possible total score.

The grading for Negative Qualities might seem a bit curious, grades of 4 being awarded for the *absence* of False Doctrine, or of Inflation, and 0 for those states having the most; but, since a total score was needed for computing the final grade of A, B, C, D, or F, it seemed convenient to scale negations positively, in order to be able to use additions only to arrive at a total. Otherwise some states would have ended with negative scores.

I. **Clarity:** the success the document has in achieving its own purpose.
   A. The words and sentences themselves must be understandable, syntactically unambiguous, and without needless jargon.
   B. What the language says should be mathematically and pedagogically definite, leaving no doubt of what the inner and outer boundaries are, of what is being asked of the student or teacher.
   C. Testability of the lessons as described.

II. **Content:** is the state asking K-12 instruction in mathematics to contain the right things, and in the right amount and pacing?
   A. Adequacy of primary school content (K-6, approximately)
   B. Adequacy of middle school content (grades 7-9, approximately)
   C. Adequacy of secondary school content (grades 10-12, approximately)

III. **Mathematical Reasoning:** do the standards as a whole and throughout demand attention to the structural organization by which the parts of mathematics are connected to each other?

IV. **Negative Qualities:** the presence of unfortunate features of the document that injure its intent or alienate the reader to no good purpose or, if taken seriously, will tend to cause that reader to deviate from what otherwise good, clear advice the document contains.
   A. False Doctrine: Demands in the standards that are injurious to the correct transmission of mathematical information, including: excessive reliance on calculators, excessive emphases on "real-world problems," the fashionable notion that a mathematical question may have a multitude of different valid answers, as well as the occurrence of plain mathematical error.
   B. Inflation: Bloated or pretentious prose, repetitiousness, evidence of mathematical ignorance, bureaucratic jargon, empty pronouncements, and other irrelevancies.

Table D1. Numerical Ratings for the States

STATE	CLARITY			CONTENT			REASON	NEG. QUALITIES		TOTAL	GRADE*
	Language I (A)	Reference I (B)	Testability I (C)	Elem. II (A)	Middle II (B)	Second. II (C)	Reasoning III	Abs. of False Doctrine IV (A)	Abs. of Inflation IV (B)	Out of 16	
Alabama	3	3	3	4	4	4	1	3	4		
AL (avg.)		3.0			4.0		1.0	3.5		11.5	B
Alaska	2	1	2	1	1	0	1	3	2		
AK (avg.)		1.7			0.7		1.0	2.5		5.9	D
Arizona	2	3	3	4	4	4	2	4	3		
AZ (avg.)		2.7			4.0		2.0	3.5		12.2	B
Arkansas	2	1	1	2	2	1	1	0	3		
AR (avg.)		1.3			1.7		1.0	1.5		5.5	D
California	4	4	4	4	4	4	4	4	4		
CA (avg.)		4.0			4.0		4.0	4.0		16.0	A
Colorado	0	1	1	1	2	2	1	2	2		
CO (avg.)		0.7			1.7		1.0	2.0		5.4	D
Connecticut	0	1	1	1	1	1	1	2	2		
CT (avg.)		0.7			1.0		1.0	2.0		4.7	D
Delaware	4	3	3	4	1	2	1	2	3		
DE (avg.)		3.3			2.3		1.0	2.5		9.1	C
District of Columbia	3	3	3	4	4	4	1	2	2		
DC (avg.)		3.0			4.0		1.0	2.0		10.0	B
Florida	2	1	1	2	2	1	1	1	2		
FL (avg.)		1.3			1.7		1.0	1.5		5.5	D
Georgia	4	3	4	3	3	3	2	3	4		
GA (avg.)		3.7			3.0		2.0	3.5		12.2	B
Hawaii	3	1	2	2	3	1	0	3	4		
HI (avg.)		2.0			2.0		0.0	3.5		7.5	C
Idaho	-	-	-	-	-	-	-	-	-		
ID (avg.)		-			-		-	-		-	-
Illinois	2	0	2	2	2	2	1	2	3		
IL (avg.)		1.3			2.0		1.0	2.5		6.8	D
Indiana	4	3	3	2	2	2	1	2	4		
IN (avg.)		3.3			2.0		1.0	3.0		9.3	C
Iowa	-	-	-	-	-	-	-	-	-		
IA (avg.)		-			-		-	-		-	-
Kansas	4	3	4	4	4	3	4	3	4		
KS (avg.)		3.7			3.7		4.0	3.5		14.9	A
Kentucky	3	2	3	4	4	2	2	3	3		
KY (avg.)		2.7			3.3		2.0	3.0		11.0	B
Louisiana	2	2	2	2	0	0	0	0	2		
LA (avg.)		2.0			0.7		0.0	1.0		3.7	F
Maine	1	0	2	1	2	2	0	2	3		
ME (avg.)		1.0			1.7		0.0	2.5		5.2	D
Maryland	4	1	3	3	3	2	1	2	4		
MD (avg.)		2.7			2.7		1.0	3.0		9.4	C
Massachusetts	3	3	3	1	1	1	0	1	2		
MA (avg.)		3.0			1.0		0.0	1.5		5.5	D
Michigan	2	1	1	1	1	1	0	0	0		
MI (avg.)		1.3			1.0		0.0	0.0		2.3	F
Minnesota	1	0	1	1	1	1	0	3	0		
MN (avg.)		0.7			1.0		0.0	1.5		3.2	F
Mississippi	4	4	4	4	4	4	2	3	3		
MS (avg.)		4.0			4.0		2.0	3.0		13.0	A
Missouri	0	1	1	2	2	2	0	0	0		
MO (avg.)		0.7			2.0		0.0	0.0		2.7	F

* Final scores are converted to letter grades using this scale: A: 13-16; B: 10-12.9; C: 7-9.9; D: 4-6.9; F: 0-3.9.

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1998, at which time they were reviewed and graded by the Foundation and its reviewers. They were not reviewed a second time for this report.

Numerical Ratings for the States (continued)

STATE	CLARITY			CONTENT			REASON	NEG. QUALITIES		TOTAL	GRADE*
	Language I (A)	Reference I (B)	Testability I (C)	Elem. II (A)	Middle II (B)	Second. II (C)	Reasoning III	Abs. of False Doctrine IV (A)	Abs. of Inflation IV (B)	Out of 16	
Montana	2	0	2	2	2	1	0	4	3		
MT (avg.)		1.3			1.7		0.0		3.5	6.5	D
Nebraska	2	2	2	4	4	0	0	3	3		
NE (avg.)		2.0			2.7		0.0		3.0	7.7	C
Nevada	4	4	4	4	2	1	1	2	2		
NV (avg.)		4.0			2.3		1.0		2.0	9.3	C
New Hampshire	3	2	1	2	2	2	1	2	4		
NH (avg.)		2.0			2.0		1.0		3.0	8.0	C
New Jersey	2	1	3	3	4	1	2	2	3		
NJ (avg.)		2.0			2.7		2.0		2.5	9.2	C
New Mexico	0	0	0	1	1	1	0	3	0		
NM (avg.)		0.0			1.0		0.0		1.5	2.5	F
New York	1	2	2	2	3	3	2	4	4		
NY (avg.)		1.7			2.7		2.0		4.0	10.4	B
North Carolina	4	3	4	4	4	3	3	3	4		
NC (avg.)		3.7			3.7		3.0		3.5	13.9	A
North Dakota	2	0	1	2	2	2	0	3	3		
ND (avg.)		1.0			2.0		0.0		3.0	6.0	D
Ohio	4	2	3	4	4	4	3	3	4		
OH (avg.)		3.0			4.0		3.0		3.5	13.5	A
Oklahoma	4	3	3	4	4	1	1	2	4		
OK (avg.)		3.3			3.0		1.0		3.0	10.3	B
Oregon	2	1	1	3	2	1	0	3	2		
OR (avg.)		1.3			2.0		0.0		2.5	5.8	D
Pennsylvania	3	1	1	3	2	2	1	1	3		
PA (avg.)		1.7			2.3		1.0		2.0	7.0	C
Rhode Island	0	0	0	1	2	0	0	0	0		
RI (avg.)		0.0			1.0		0.0		0.0	1.0	F
South Carolina	4	3	2	4	4	2	1	2	4		
SC (avg.)		3.0			3.3		1.0		3.0	10.3	B
South Dakota	4	3	4	4	4	4	3	3	4		
SD (avg.)		3.7			4.0		3.0		3.5	14.2	A
Tennessee	0	0	0	2	1	1	1	2	0		
TN (avg.)		0.0			1.3		1.0		1.0	3.3	F
Texas	4	3	3	3	3	3	1	4	3		
TX (avg.)		3.3			3.0		1.0		3.5	10.8	B
Utah	4	2	2	3	3	3	3	3	3		
UT (avg.)		2.7			3.0		3.0		3.0	11.7	B
Vermont	2	2	1	4	4	2	1	4	3		
VT (avg.)		1.7			3.3		1.0		3.5	9.5	C
Virginia	4	4	4	3	2	2	2	3	4		
VA (avg.)		4.0			2.3		2.0		3.5	11.8	B
Washington	0	0	0	1	2	0	0	3	0		
WA (avg.)		0.0			1.0		0.0		1.5	2.5	F
West Virginia	4	3	3	3	4	4	2	3	4		
WV (avg.)		3.3			3.7		2.0		3.5	12.5	B
Wisconsin	2	1	2	3	4	1	0	3	3		
WI (avg.)		1.7			2.7		0.0		3.0	7.4	C
Wyoming	1	0	2	2	2	1	1	2	3		
WY (avg.)		1.0			1.7		1.0		2.5	6.2	D

* Final scores are converted to letter grades using this scale: A 13-16, B 10-12.9, C 7-9.9, D 4-6.9, F 0-3.9

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1998, at which time they were reviewed and graded by the Foundation and its reviewers. They were not reviewed a second time for this report.

Appendix E: Science Criteria and Detailed Grades

The science standards appraisal employed 25 criteria in 5 categories. To read an explanation of the criteria and other supporting materials, see Lawrence S. Lerner, *State Science Standards: An Appraisal of Science Standards in 36 States*, March 1998, on-line at www.edexcellence.net.

While numbers can never yield a complete assessment of academic standards, the degree to which a standard measures up to each criterion is roughly evaluated by means of a four-point scale:

0: The criterion is addressed not at all or in an unsatisfactory manner
1: The criterion is met spottily or inconsistently
2: The criterion is often or usually met
3: The criterion is met almost always or always, and in a perceptive and thoughtful manner

Because numbers cannot reflect subtler aspects of a complex document, we adopted the following system: To each standards document we assigned an initial letter grade based entirely on the total numerical score. We then considered additional factors that might change the letter grade, and altered the grade by a maximum of one letter up or down in light of these factors. This alteration affected only three states.

A. Purpose, expectations, and audience

1. The standards document expects students to become scientifically literate, at depths appropriate to their grade levels.
2. The document can serve as the basis for clear and reliable statewide assessments of student learning and skills acquisition, both theoretical and practical.
3. The document is clear, complete, and comprehensible to all interested audiences: educators, subject experts, policy makers, and the general public.
4. The document expects student written work to be presented clearly in Standard English and, where called for, in acceptable mathematical language. It expects student oral presentations to be clear, well organized, logical, and to the point.

B. Organization

1. The standards are presented grade-by-grade or in clusters of no more than three to four grade levels.
2. They are grouped in categories reflecting the fundamental theoretical structures underlying the various sciences.
3. They pay proper attention to the elementary skills of simple observation and data gathering, the interpretation of systematic observations, and the design of experiments on the basis of a theoretical framework.

C. Coverage and Content

1. The standards address the experimental and observational basis of the sciences, and provide for substantial laboratory and/or field experience in the sciences. Replication of important classical experiments is encouraged. The primacy of evidence over preconception is made clear.
2. The standards stress the importance of clear, unambiguous terminology and rigorous definition. Such terms as energy, mass, valence, pH, genotype, natural selection, cell, metabolism, continental drift, magnetic reversal, and cosmic background radiation are defined as rigorously as possible at the grade level concerned.
3. The standards address such issues as data analysis, experimental error, reliability of data, and the procedures used to optimize the quality of raw information. The stringent criteria for acceptance of data are made clear.
4. The standards expect students to master the techniques of presentation and interpretation of tabular and graphical data at increasingly sophisticated levels.
5. The standards address the need for systematic, critical interpretation of experimental/observational data within the framework of accepted theory. The continual interplay between data and theory, and the rejection or remeasurement of data and modification of theory where necessary, are stressed at all grade levels, commensurate with the students' degrees of maturity. The nature and role of scientific revolutions, and how or when they occur (or do not occur), are part of the curriculum for students sufficiently advanced to appreciate the issues involved.
6. The basic underlying principles of all the sciences are stressed. Examples include Newton's laws, conservation laws, and the

microscopic/macroscopic connection in physics; the evolution of the universe and the structure of its parts (including the solar system) in astronomy; plate tectonics in geology; the roles of mass and energy conservation and the nature of the chemical bond in chemistry; and evolution and the molecular basis of life in biology. At the elementary levels, these principles may be exemplified by such observations as buoyancy, plant tropisms, and the gross structure of cells.

7. The increasing ability of students to grasp abstractions and generalizations is taken into account. The broad, less structured knowledge base laid in the early grades is consistently and methodically built up on the basis of progressively more sophisticated theoretical treatment as the students mature.
8. The standards emphasize the need to set forth the general methodologies of the sciences, but do not oversimplify this need into an artificial package called "*the* scientific method." The underlying commonalities of the sciences, as well as the distinctions among them, are made clear.
9. The standards consider the two-way relationships between science and technology, and between science and broader worldviews, and the way that science has helped to shape society. The standards stress the fact that science is intellectually satisfying as well as socially useful. A common interest in science can act as a strong unifying force among people who differ widely in other ways.

D. Quality

1. The standards are unambiguous and appropriate; that is, their meaning is straightforward and to the point.
2. They are specific but flexible; that is, they are neither so broad as to be vague nor so narrow as to be trivial.
3. They comprehensively cover basic knowledge, the importance of which is generally agreed upon by the scientific community; they are not, however, encyclopedic.
4. Standards are demanding:
   a. They expect increasing intellectual sophistication and higher levels of abstraction, as well as the skills required to deal with increasingly complex arrays of information, at successively higher educational levels. In light of the tight logical structure of the sciences, it is especially important that the standards also expect the knowledge gained by students to be cumulative, each level building on what has been mastered earlier.
   b. Their overall contents are sufficiently specific and comprehensive to underlie a common core of understanding of science for all students in all the schools of the state. They are sufficiently demanding to ensure that this common core comprises understanding of the basic principles of all the sciences, and of their methodologies.

E. Negatives

1. The standards must not accept as scientific, or encourage, pseudoscientific or scientifically discredited constructs such as quack medical doctrines (e.g., homeopathy, foot reflexology), vaguely defined "energy fields" or "auras," creationism and other nonscientific cosmologies, UFO visits, astrology, or mysterious "life forces."
2. The standards must not imply that scientific principles are race-, ethnic-, or gender-specific, or distort the history of science to promote racial-, ethnic-, or gender-based positions.
3. The standards must not confuse science with technology.
4. The standards must not encourage an antiscientific or antitechnological world-view.

Table E1. Summary of Results (Maximum Score = 75)

State	A. Purposes, Expectations & Audience	B. Organization	C. Coverage & Content	D. Quality	E. Negatives	Additional factors	Raw Score	Percentage	Grade*
Alabama	8	6	18	10	9	-	51	68%	D
Alaska	-	-	-	-	-	-	-	-	-
Arizona	12	9	24	14	12	-	71	95%	A
Arkansas	6	6	17	8	9	-	46	61%	F
California	12	9	27	15	12	-	75	100%	A
Colorado	8	9	18	12	12	-	59	79%	D
Connecticut	11	9	23	15	12	-	70	93%	B
Delaware	11	9	27	15	12	-	74	99%	A
District of Columbia	-	-	-	-	-	-	-	-	-
Florida	2	5	14	6	10	-	37	49%	F
Georgia	3	6	13	9	9	-	40	53%	F
Hawaii	6	8	18	11	12	-	55	73%	D
Idaho	-	-	-	-	-	-	-	-	-
Illinois	10	9	22	15	12	-	68	91%	B
Indiana	12	9	26	15	12	-	74	99%	A
Iowa	-	-	-	-	-	-	-	-	-
Kansas	0	3	2	1	1	-	7	9%	F
Kentucky	10	6	18	14	10	-	58	77%	D
Louisiana	11	8	19	14	12	-	64	85%	C
Maine	8	9	16	11	12	-	56	75%	D
Maryland	8	9	20	7	12	-	56	75%	D
Massachusetts	12	9	24	15	12	-	72	96%	A
Michigan	5	7	16	11	12	-	51	68%	D
Minnesota	11	9	24	15	12	-	71	95%	A
Mississippi	5	4	7	5	8	-	29	39%	F
Missouri	9	8	21	14	12	-	64	85%	C
Montana	6	9	17	7	10	-	49	65%	D
Nebraska	11	8	26	14	11	-	70	93%	B
Nevada	9	7	23	14	12	-	65	87%	C
New Hampshire	7	5	13	6	12	-	43	57%	F
New Jersey	12	9	23	15	12	-	71	95%	A
New Mexico	4	5	6	4	12	-	31	41%	F
New York	8	6	16	9	12	9	60	80%	C
North Carolina	11	9	26	15	12	-	73	97%	A
North Dakota	5	5	13	7	11	-	41	55%	F
Ohio	10	8	25	13	12	-	68	91%	B
Oklahoma	4	4	9	7	5	-	29	39%	F
Oregon	12	8	22	15	12	-	69	92%	B
Pennsylvania	-	-	-	-	-	-	-	-	-
Rhode Island	12	9	23	15	12	-	71	95%	A
South Carolina	11	7	26	14	12	-	70	93%	B
South Dakota	10	8	23	15	12	-	68	91%	B
Tennessee	7	6	14	6	10	-	43	57%	F
Texas	10	9	20	15	12	-	66	88%	C
Utah	11	9	22	15	12	-	69	92%	B
Vermont	10	9	24	14	12	-	69	92%	B
Virginia	5	6	9	12	12	5	49	65%	D
Washington	11	8	22	15	12	-	68	91%	B
West Virginia	4	4	12	6	10	-	36	48%	F
Wisconsin	8	7	16	9	12	8	60	80%	C
Wyoming	3	5	10	1	12	-	31	41%	F

*Percentages are converted to letter grades using this scale: A: 95-100%; B: 90-94%; C: 80-89%; D: 65-79%; F: 0-65%.

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1998, at which time they were reviewed and graded by the Foundation and its reviewers. They were not reviewed a second time for this report.

163

Table E2. Purpose, Expectations, and Audience (Category A: Maximum Score = 12)

State	Expectations of Scientific Literacy	Basis for Assessment	Clarity, Completeness, Comprehensibility	aExpectations for Written & Oral Work	Subtotal
Alabama	2	3	1	2	8
Alaska	-	-	-	-	-
Arizona	3	3	3	3	12
Arkansas	2	1	1	2	6
California	3	3	3	3	12
Colorado	3	2	2	1	8
Connecticut	3	3	3	2	11
Delaware	3	3	3	2	11
District of Columbia	-	-	-	-	-
Florida	1	0	1	0	2
Georgia	1	0	1	1	3
Hawaii	3	1	1	1	6
Idaho	-	-	-	-	-
Illinois	3	3	3	1	10
Indiana	3	3	3	3	12
Iowa	-	-	-	-	-
Kansas	0	0	0	0	0
Kentucky	3	3	2	2	10
Louisiana	3	2	3	3	11
Maine	3	2	2	1	8
Maryland	3	1	1	3	8
Massachusetts	3	3	3	3	12
Michigan	1	1	3	0	5
Minnesota	3	3	3	2	11
Mississippi	1	1	1	2	5
Missouri	3	2	3	1	9
Montana	2	1	1	2	6
Nebraska	3	3	3	2	11
Nevada	2	2	3	2	9
New Hampshire	2	2	2	1	7
New Jersey	3	3	3	3	12
New Mexico	1	0	0	3	4
New York	3	2	1	2	8
North Carolina	3	3	3	2	11
North Dakota	1	1	1	2	5
Ohio	3	2	2	3	10
Oklahoma	1	1	0	2	4
Oregon	3	3	3	3	12
Pennsylvania	-	-	-	-	-
Rhode Island	3	3	3	3	12
South Carolina	3	3	3	2	11
South Dakota	3	3	3	1	10
Tennessee	3	1	1	2	7
Texas	3	3	3	1	10
Utah	3	3	3	2	11
Vermont	3	3	2	2	10
Virginia	3	1	1	0	5
Washington	3	3	3	2	11
West Virginia	3	0	0	1	4
Wisconsin	3	1	3	1	8
Wyoming	1	0	0	2	3

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Table E3. Organization (Category B: Maximum Score = 9)

State	Clusters of 4 Grades or Fewer	Consistency with Scientific Theory	Sound Theoretical Basis	Subtotal
Alabama	3	1	2	6
Alaska	-	-	-	-
Arizona	3	3	3	9
Arkansas	3	1	2	6
California	3	3	3	9
Colorado	3	3	3	9
Connecticut	3	3	3	9
Delaware	3	3	3	9
District of Columbia	-	-	-	-
Florida	3	1	1	5
Georgia	3	1	2	6
Hawaii	3	3	2	8
Idaho	-	-	-	-
Illinois	3	3	3	9
Indiana	3	3	3	9
Iowa	-	-	-	-
Kansas	3	0	0	3
Kentucky	3	1	2	6
Louisiana	3	3	2	8
Maine	3	3	3	9
Maryland	3	3	3	9
Massachusetts	3	3	3	9
Michigan	3	3	1	7
Minnesota	3	3	3	9
Mississippi	3	0	1	4
Missouri	3	3	2	8
Montana	3	3	3	9
Nebraska	3	2	3	8
Nevada	3	2	2	7
New Hampshire	3	1	1	5
New Jersey	3	3	3	9
New Mexico	3	1	1	5
New York	3	1	2	6
North Carolina	3	3	3	9
North Dakota	3	1	1	5
Ohio	3	2	3	8
Oklahoma	3	0	1	4
Oregon	3	2	3	8
Pennsylvania	-	-	-	-
Rhode Island	3	3	3	9
South Carolina	3	2	2	7
South Dakota	3	3	2	8
Tennessee	3	1	2	6
Texas	3	3	3	9
Utah	3	3	3	9
Vermont	3	3	3	9
Virginia	3	2	1	6
Washington	2	3	3	8
West Virginia	3	0	1	4
Wisconsin	3	2	2	7
Wyoming	3	1	1	5

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Table E4. Coverage and Content (Category C: Maximum Score = 27)

	Experimental Evidence, Classical Experiments	Clear Terminology, Rigorous Definition	Stringent Criteria for Data	Progressive Mastery of Graphs	Theory & Experiment	Basic Principles	Ability to Grasp Abstractions	Methodology	Science & Technology	Subtotal
Alabama	1	2	2	3	1	2	3	2	2	18
Alaska	-	-	-	-	-	-	-	-	-	-
Arizona	2	2	2	3	3	3	3	3	3	24
Arkansas	3	1	3	1	2	1	2	2	2	17
California	3	3	3	3	3	3	3	3	3	27
Colorado	1	1	1	2	2	3	3	3	2	18
Connecticut	3	2	2	2	2	3	3	3	3	23
Delaware	3	3	3	3	3	3	3	3	3	27
District of Columbia	-	-	-	-	-	-	-	-	-	-
Florida	1	1	2	1	2	1	2	2	2	14
Georgia	2	1	3	2	0	0	1	2	2	13
Hawaii	1	2	1	1	2	2	3	3	3	18
Idaho	-	-	-	-	-	-	-	-	-	-
Illinois	2	1	3	2	2	3	3	3	3	22
Indiana	3	3	3	3	2	3	3	3	3	26
Iowa	-	-	-	-	-	-	-	-	-	-
Kansas	0	0	0	1	0	0	0	0	1	2
Kentucky	1	1	1	3	2	1	3	3	3	18
Louisiana	2	2	1	1	1	3	3	3	3	19
Maine	2	2	1	1	1	2	2	2	3	16
Maryland	3	1	3	3	2	1	2	3	2	20
Massachusetts	3	3	2	3	2	3	2	3	3	24
Michigan	1	1	2	1	2	2	2	2	3	16
Minnesota	2	3	2	2	3	3	3	3	3	24
Mississippi	1	0	1	1	1	0	0	2	1	7
Missouri	2	2	1	2	3	2	3	3	3	21
Montana	1	1	2	2	2	2	3	2	2	17
Nebraska	3	3	3	3	3	2	3	3	3	26
Nevada	3	3	3	2	2	2	2	3	3	23
New Hampshire	2	0	2	1	1	1	2	2	2	13
New Jersey	3	2	3	2	2	2	3	3	3	23
New Mexico	1	0	1	1	1	0	1	0	1	6
New York	2	1	1	2	1	2	2	2	3	16
North Carolina	3	3	3	2	3	3	3	3	3	26
North Dakota	1	1	1	2	1	1	1	2	3	13
Ohio	2	3	3	3	3	2	3	3	3	25
Oklahoma	1	1	1	2	0	1	1	1	1	9
Oregon	2	3	3	2	2	2	3	2	3	22
Pennsylvania	-	-	-	-	-	-	-	-	-	-
Rhode Island	3	3	3	2	2	2	3	2	3	23
South Carolina	3	3	3	3	3	2	3	3	3	26
South Dakota	1	3	2	2	3	3	3	3	3	23
Tennessee	1	3	0	1	1	0	2	3	3	14
Texas	3	3	1	2	2	3	2	2	2	20
Utah	2	2	2	2	2	3	3	3	3	22
Vermont	2	3	3	2	2	3	3	3	3	24
Virginia	2	1	0	1	0	2	1	1	1	9
Washington	3	2	2	2	2	3	3	3	2	22
West Virginia	2	0	1	1	1	1	2	1	3	12
Wisconsin	2	1	2	1	1	1	3	2	3	16
Wyoming	1	0	2	2	1	0	0	2	2	10

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1998, at which time they were reviewed and graded by the Foundation and its reviewers. They were not reviewed a second time for this report.

156

Table E5. Quality (Category D: Maximum Score = 15)

Subtotal	Unambiguous & Appropriate	Specific but Flexible	Comprehensive but Not Encyclopedic	Reasonably Cumulative	Reasonably Specific	Subtotal
Alabama	*1*	*3*	*1*	*3*	*2*	*10*
Alaska	.	.	.	.	.	.
Arizona	3	3	2	3	3	14
Arkansas	*1*	*2*	*1*	*2*	*2*	*8*
California	3	3	3	3	3	15
Colorado	*2*	*3*	*2*	*3*	*2*	*12*
Connecticut	*3*	*3*	*3*	*3*	*3*	*15*
Delaware	3	3	3	3	3	15
District of Columbia	.	.	.	.	.	.
Florida	0	1	2	2	1	6
Georgia	3	3	0	2	1	9
Hawaii	3	1	3	3	1	11
Idaho	.	.	.	.	.	.
Illinois	*3*	*3*	*3*	*3*	*3*	*15*
Indiana	*3*	*3*	*3*	*3*	*3*	*15*
Iowa	.	.	.	.	.	.
Kansas	1	0	0	0	0	1
Kentucky	3	3	2	3	3	14
Louisiana	2	3	3	3	3	14
Maine	2	2	2	2	3	11
Maryland	1	1	2	2	1	7
Massachusetts	3	3	3	3	3	15
Michigan	2	2	3	2	2	11
Minnesota	3	3	3	3	3	15
Mississippi	*2*	*0*	*0*	*2*	*1*	*5*
Missouri	*2*	*3*	*3*	*3*	*3*	*14*
Montana	1	1	2	2	1	7
Nebraska	3	3	2	3	3	14
Nevada	3	3	2	3	3	14
New Hampshire	1	1	1	2	1	6
New Jersey	*3*	*3*	*3*	*3*	*3*	*15*
New Mexico	*1*	*1*	*1*	*1*	*0*	*4*
New York	*1*	*3*	*1*	*2*	*2*	*9*
North Carolina	3	3	3	3	3	15
North Dakota	2	2	1	1	1	7
Ohio	2	3	3	3	2	13
Oklahoma	2	2	0	2	1	7
Oregon	3	3	3	3	3	15
Pennsylvania	.	.	.	.	.	.
Rhode Island	*3*	*3*	*3*	*3*	*3*	*15*
South Carolina	3	3	2	3	3	14
South Dakota	3	3	3	3	3	15
Tennessee	*0*	*2*	*0*	*2*	*2*	*6*
Texas	*3*	*3*	*3*	*3*	*3*	*15*
Utah	*3*	*3*	*3*	*3*	*3*	*15*
Vermont	*3*	*2*	*3*	*3*	*3*	*14*
Virginia	*3*	*3*	*3*	*2*	*1*	*12*
Washington	*3*	*3*	*3*	*3*	*3*	*15*
West Virginia	*0*	*2*	*1*	*2*	*1*	*6*
Wisconsin	*2*	*1*	*2*	*2*	*2*	*9*
Wyoming	0	0	0	1	0	1

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1998, at which time they were reviewed and graded by the Foundation and its reviewers. They were not reviewed a second time for this report.

Table E6. Negatives (Category E: Maximum Score = 12)

Subtotal	Eschew Pseudo-Science, Quackery	Not Race-, Gender-, Ethnic-Specific	Science Not Confused with Technology	Reject Anti-Science, Anti-Technology	Subtotal
Alabama	1	3	3	2	9
Alaska	-	-	-	-	-
Arizona	3	3	3	3	12
Arkansas	0	3	3	3	9
California	3	3	3	3	12
Colorado	3	3	3	3	12
Connecticut	3	3	3	3	12
Delaware	3	3	3	3	12
District of Columbia	-	-	-	-	-
Florida	1	3	3	3	10
Georgia	1	3	3	2	9
Hawaii	3	3	3	3	12
Idaho	-	-	-	-	-
Illinois	3	3	3	3	12
Indiana	3	3	3	3	12
Iowa	-	-	-	-	-
Kansas	0	0	1	0	1
Kentucky	2	3	3	2	10
Louisiana	3	3	3	3	12
Maine	3	3	3	3	12
Maryland	3	3	3	3	12
Massachusetts	3	3	3	3	12
Michigan	3	3	3	3	12
Minnesota	3	3	3	3	12
Mississippi	2	1	3	2	8
Missouri	3	3	3	3	12
Montana	3	1	3	3	10
Nebraska	2	3	3	3	11
Nevada	3	3	3	3	12
New Hampshire	3	3	3	3	12
New Jersey	3	3	3	3	12
New Mexico	3	3	3	3	12
New York	3	3	3	3	12
North Carolina	3	3	3	3	12
North Dakota	3	3	3	2	11
Ohio	3	3	3	3	12
Oklahoma	0	3	2	0	5
Oregon	3	3	3	3	12
Pennsylvania	-	-	-	-	-
Rhode Island	3	3	3	3	12
South Carolina	3	3	3	3	12
South Dakota	3	3	3	3	12
Tennessee	1	3	3	3	10
Texas	3	3	3	3	12
Utah	3	3	3	3	12
Vermont	3	3	3	3	12
Virginia	3	3	3	3	12
Washington	3	3	3	3	12
West Virginia	3	3	1	3	10
Wisconsin	3	3	3	3	12
Wyoming	3	3	3	3	12

To the best of our knowledge, states that appear in italics have standards documents that have not been revised since 1998, at which time they were reviewed and graded by the Foundation and its reviewers. They were not reviewed a second time for this report.

Appendix F: State Documents Examined

Note: This appendix includes all state documents newly examined in this report *and* documents unchanged since our last review. Therefore, all grades reported in this report are based on the following documents.

Alabama

English/Language Arts
Alabama Course of Study: English Language Arts, 1999

History
Alabama Course of Study: Social Studies, Alabama State Department of Education, Bulletin 1998, No. 18

Geography
Ibid.

Math
Alabama Course of Study: MATHEMATICS, Mathematical Power K-12, Alabama State Department of Education, Bulletin 1997, No. 4

Science
Alabama Course of Study: Scientific Literacy, Alabama State Department of Education, Bulletin 1995, No. 4

Alaska

English/Language Arts
Alaska Content Standards, undated

History
Alaska Content Standards, undated

Geography
Alaska Content Standards—*Geography, pages 21 – 23*, undated

Math
1) *Alaska Content Standards*, undated
2) *Alaska Performance Standards*, undated

Science
Alaska Content Standards, undated

Arizona

English/Language Arts
1) *The Language Arts Essential Skills*, February 1989
2) *Language Arts Standards (Reading and Writing)*, August 1996

History
Arizona Academic Standards in History, Civics, Geography, and Economics, Draft, August 1999

Geography
Ibid.

Math
Mathematics Performance Objectives, August 1996

Science
Arizona Academic Standards: Science, August 1998

Arkansas

English/Language Arts
English Language Arts Curriculum Framework, Revised 1998

History
Curriculum Frameworks: Social Studies, Draft, May 1997

Geography
Curriculum Frameworks: Social Studies, Draft, 1996

Math
1) *Curriculum Frameworks: Mathematics*, 1998
2) *Sample Curriculum Models, 1-4*, 1998
3) *Sample Grade Level Benchmarks*, 1-4, 1998

Science
Science Curriculum Framework, 1996

California

English/Language Arts
English-Language Arts Standards for California Public Schools, 1998

History
History/Social Science Content Standards Grades K-12, Pre-publication version, March 1999

Geography
Ibid.

Math
The California MATHEMATICS Academic Content Standards for Grades K-12, 1999

Science
Science Content Standards, Grades K-12, Prepublication Version, 1998

Colorado

English/Language Arts
Model Content Standards: Reading and Writing, Summer 1996

History
Model Content Standards for History, September 1995

Geography
Mapping Out a Standards-Based Framework for GEOGRAPHY—The Colorado Geography Curriculum Framework, Amended November 1995

Math
Model Content Standards, June 1995

Science
Ibid.

Connecticut

English/Language Arts
1) *Curriculum Framework*, 1998
2) *Read, Read, Read*, 1998
3) *Common Core of Learning*, 1998
4) *Improving Reading Competency*, 1998
5) *Learning Resources and Information Technology Framework*, 1998
6) *Draft Design of the Third Generation of the Connecticut Mastery Test*, 1998

History
1) *Social Studies Curriculum Framework*, May 1998
2) *Connecticut's Common Core of Learning*, 1998

Geography
Social Studies Curriculum Framework, May 1998

Math
Mathematics Curriculum Framework, March 1998

Science
Science Curriculum Framework, Second Draft, August 1997

Delaware

English/Language Arts
English Language Arts—End of Cluster Expectations and Performance Indicators for Grades K-5 (February 1998), 6-8 (May 1998), and 8-12 (February 1999)

History
Delaware Social Studies Standards, Undated, Received for review, August 1999

Geography
Delaware Social Studies Standards—Geography Performance Indicators, Undated, Received for review, August 1999

Math
1) *Mathematics Performance Indicators for Grades K-8*, Undated (downloaded 1999)
2) *High School Performance Indicators Models 1 and 2*, Undated (downloaded 1999)

Science
1) *Science Performance Indicators for Grades K-5* (February 1998), 6-8 (May 1998)
2) *Science Curriculum Framework: Content Standards for Grades 9-11*

District of Columbia

English/Language Arts
Reading/English Language Arts Standards, PreK-12, 1999

History
Standards for Teaching and Learning Social Studies, Undated, Received for review, September 1999

Geography
Ibid.

Math
Standards for Teaching and Learning, undated (but apparently 1999)

Science
No standards were available for review.

Florida

English/Language Arts
1) *Sunshine State Standards, PreK-12 Language Arts*, 1996
2) *Grade Level Expectations for the Sunshine State Standards: Grades K-8*

History
1) *Sunshine State Standards, Florida, Social Studies*, April 1999
2) *Grade Level Expectations for the Sunshine State Standards: Social Studies Grades 6-8, Grades 3-5, Grades PreK-2*, April 1999

Geography
Grade Level Expectations for the Sunshine State Standards: Social Studies Grades PreK-2, Grades 3-5, Grades 6-8, April 1999

Math
1) *Florida Course Descriptions Grades 6-12*, 1997
2) *Grade Level Expectations for the Sunshine State Standards*, June 1999

Science
Florida Curriculum Framework—Science, 1998

Georgia

English/Language Arts
Quality Core Curriculum, December 1997

History
Quality Core Curriculum: Social Studies, December 1997

Geography
Ibid.

Math
Quality Core Curriculum: Mathematics, Draft Revision, Edition 2, December 1997

Science
Georgia's Quality Core Curriculum: Science, December 1997

Hawaii

English/Language Arts
Language Arts Content Standards, August 1999

History
Social Studies Content Standards, August 1999

Geography
Ibid.

Math
Mathematics Content Standards, Downloaded 1999

Science
Science Content Standards, August 1999

Idaho

Idaho's standards were incomplete and not reviewed.

Illinois

English/Language Arts
Illinois Learning Standards for English Language Arts, July 1997

History
Illinois Learning Standards for Social Science, July 1997

Geography
Ibid.

Math
Illinois Learning Standards, July 1997

Science
Ibid.

Indiana

English/Language Arts
English Language Arts Proficiency Guide, Draft, May 1999

History
Social Studies Proficiency Guide: An Aid to Curriculum Development, 1996

Geography
Ibid.

Math
Indiana Mathematics Standards, Undated (downloaded 1999)

Science
1) *Science Proficiency Guide*
2) *Indiana High School Competencies*

Iowa

Iowa does not intend to write state standards.

Kansas

English/Language Arts
Curricular Standards for Reading and Writing, 1998

History
Curricular Standards for Civics-Government, Economics, Geography, and History, Third Draft, March 1999

Geography
Ibid.

Math
Curricular Standards, March 1999

Science
Science Education Standards, Fifth Working Draft, June 1999

Kentucky

English/Language Arts
1) *Grades Primary to 12*, 1998
2) *Proposed Revisions to the Core Content for Reading and Writing Assessments*, undated

History
1) *Program of Studies for Kentucky Schools: Grades Primary—12: Social Studies*, 1998
2) *Transformations: Kentucky's Curriculum Framework*, Volume I, 1993
3) *Core Content for Social Studies Assessment Version 1.0*, 1996

Geography
1) *Core Content for Social Studies Assessment Version 3.0*, Internet Draft, August 31, 1999
2) *Transformations: Goal 2 Social Studies*, undated
3) *Program of Studies for Kentucky Schools—Grades Primary-12*, 1998

Math
1) *Program of Studies*, 1998
2) *Transformations: Kentucky's Curriculum Framework: Mathematics*, undated

Science
1) *Core Content for Science Assessment*, Version 3.0, August 9, 1999
2) *Program of Studies for Kentucky Schools, Grades Primary-12*, 1998
3) *Kentucky's Learning Goals and Academic Expectations*, 1994
4) *Transformations: Kentucky's Curriculum Framework: Science*, 1993

Louisiana

English/Language Arts
1) *English Language Arts Content Standards*
2) *Teachers' Guide to Statewide Assessment*, Grades 4, 8, and 10, May 1997
3) *Released Test Items*, Grades 4 and 8, 1999

History
1) *Louisiana Social Studies Content Standards*, May 22, 1997
2) *Louisiana Educational Assessment Program (LEAP) for the 21ST Century: Teachers' Guide to Statewide Assessment Grades 4, 8 and 11: Social Studies*, October 1998

Geography
Louisiana Educational Assessment Program (LEAP) for the 21ST Century: Teachers' Guide to Statewide Assessment Grades 4, 8 and 11: Social Studies, October 1998

Math
1) *Louisiana Mathematics Framework*, 1997
2) *Teachers' Guide to Statewide Assessment-Mathematics*, Grades 4, 8, and 10
3) Released Test Items

Science
1) *Louisiana Science Framework*, May 22, 1997
2) *LEAP for the 21ST Century: Teachers' Guide to Statewide Assessment, Grades 4,8,11: Science*, Preliminary Draft, October 1998

Maine

English/Language Arts
English Language Arts Standards, 1997

History
Learning Results (Social Studies), May 1997

Geography
Learning Results (Social Studies), July 1997

Math
Learning Results, July 1997

Science
Maine Science and Technology Standards, 1997

Maryland

English/Language Arts
1) *English Language Arts Content Standards*, July 1999
2) *High School Core Learning Goals*, September 1996

History
Social Studies Standards, July 1999

Geography
Ibid.

Math
Mathematics Content Standards, Draft, July 1999

Science
Science Content Standards, July 1999

Massachusetts

English/Language Arts
English Language Arts Curriculum Framework, January 1997

History
History and Social Science Curriculum Framework, July 1997

Geography
Ibid.

Math
1) *Mathematics Curriculum Framework*, 1997
2) *Guide to the Massachusetts Comprehensive Assessment System: Mathematics*, January 1998

Science
1) *Science & Technology Curriculum Framework: Owning the Questions Through Science & Technology*, 1997
2) *Guide to the Massachusetts Comprehensive Assessment System: Science & Technology*, January 1998

Michigan

English/Language Arts
Model Content Standards for Curriculum: English Language Arts, October 1996

History
Model Content Standards for Curriculum: Social Studies, Draft, Undated, Received May 1997

Geography
Curriculum Framework, 1996

Math
1) *Model Content Standards for Curriculum*, including *Academic Core Curriculum Content Standards*, July 1996
2) *Curriculum Framework*, January 1996

Science
Content Standards and Draft Benchmarks

Minnesota

English/Language Arts
Learning Areas One, Two, and Three, undated

History
The Profile of Learning Preparatory Standards (Primary, Intermediate, Middle, High School Levels), April 1997

Geography
Ibid.

Math
K-12 Mathematics Framework, 1998

Science
K-12 Science Framework, September 1997

Mississippi

English/Language Arts
1) *Language Arts Framework*, 1996
2) *Reading Instructional Intervention Supplement*, Grades K-3, 1998
3) *Reading Instructional Intervention Supplement*, Grades 4-8, 1999

History
Social Studies Framework, 1998

Geography
Ibid.

Math
Mathematics Framework Draft 2000

Science
Science Framework, 1996

Missouri

English/Language Arts
1) *Framework for Curriculum Development in Communication Arts, K-12*, 1996
2) *Assessment Annotations for Grades 3, 7, and 11*, 1999

History
1) *Missouri's Framework for Curriculum Development in Social Studies K-12*, 1996
2) *Content Specifications for Statewide Assessment by Standards - Social Studies - Grades 4, 8, & 11*, April 1998

Geography
Content Specifications for Statewide Assessment by Standards - Social Studies - Grades 4, 8, & 11, April 1998

Math
Framework for Curriculum Development in Mathematics, K-12, 1996

Science
1) *Framework for Curriculum Development in Science*, K-12, 1996
2) *Assessment Annotations for the Curriculum Frameworks: Science, Grades 3, 7, and 10*, undated

Montana

English/Language Arts
School Improvement Initiative: Standards Revision, October 1998 and June 1999

History
No standards were available for review.

Geography
No standards were available for review.

Math
Standards for Mathematics, October 1998

Science
Standards for Science, June 1999

Nebraska

English/Language Arts
Reading/Writing Standards, February 1998

History
Social Studies/History Standards, May 1998

Geography
Nebraska L.E.A.R.N.S., May 1998

Math
Ibid.

Science
Ibid.

Nevada

English/Language Arts
English Language Arts Standards, August 1998

History
Social Studies Standards, Draft, April 1999

Geography
Ibid.

Math
Content Standards, 1998

Science
1) *Nevada Science Content Standards for Grades 2, 3, 5, 8, and 12*, August 20, 1998
2) *Indicators of Progress for Kindergarten and Grades 1, 4, 6, and 7*, August 20, 1998

New Hampshire

English/Language Arts
1) *K-12 English Language Arts Curriculum Framework*, June 1995
2) *K-6 Addendum*, June 1997

History
1) *K-12 Social Studies Curriculum Framework*, May 1996
2) *7-10 Social Studies Addendum for the K-12 Social Studies Curriculum Framework*, July 1998

Geography
1) *K-12 Social Studies Curriculum Framework*, August\ 1995
2) *7-10 Social Studies Addendum for the K-12 Social Studies Curriculum Framework*, July 1998

Math
1) *K-12 Mathematics Curriculum Framework*, February 1995
2) *Addenda*, Grades K-3, 4-6, and 7-10; 1994, 1995, 1996

Science

1) *K-12 Science Curriculum Framework*, 1995
2) *K-6 Science Addendum for the K-12 Science Curriculum Framework*, August 1995
3) *7-10 Science Addendum for the K-12 Science Curriculum Framework*, August 1996

New Jersey

English/Language Arts

1) *Core Curriculum Content Standards for Language Arts Literacy*, Downloaded April 1997
2) *Directory of Test Specifications and Sample Items for statewide assessments*, February 1998

History

New Jersey Social Studies Curriculum Framework, Final Draft, March 1999

Geography

Ibid.

Math

1) *Core Curriculum Content Standards for Mathematics*, 1995 (revised 1996)
2) *Mathematics Curriculum Framework*, 1996

Science

1) *Core Curriculum Content Standards for Science*, 1996
2) *Directory of Test Specifications and Sample Items for the Grade Eight Proficiency Assessment (GEPA) in Science*
3) *High School Proficiency Assessment (HSPA) in Science*

New Mexico

English/Language Arts

1) *Content Standards and Benchmarks*, 1996
2) *Performance Standards*, 1998

History

Social Studies K-12 Content Standards with Benchmarks, August 1996

Geography

Social Studies K-12 Content Standards with Benchmarks, Winter 1997

Math

Content Standards with Benchmarks, Fall 1996

Science

Ibid.

New York

English/Language Arts

English Language Arts: Resource Guide with Core Curriculum, July 1998

History

1) *Social Studies Resource Guide with Core Curriculum*, Draft, June 1999
2) *Social Studies Revised Standards*, undated

Geography

Social Studies Resource Guide with Core Curriculum, Draft, June 1999

Math

Mathematics Resource Guide with Core Curriculum, Draft, June 1999

Science

Mathematics, Science & Technology Guide

North Carolina

English/Language Arts

English Language Arts Working Draft K-12, January 1999

History

Social Studies Standard Course of Study, Revised 1997

Geography

Social Studies Standard Course of Study: Framework and Teacher Handbook, 1997

Math

1) *Standard Course of Study and Grade Level Competencies K-12*, Revised 1998
2) *High School Mathematics Courses*, Revised 1998

Science

Science: Standard Course of Study and Grade Level Competencies, K-12, Final Draft, 1999

North Dakota

English/Language Arts

English Language Arts Curriculum Framework: Standards and Benchmarks, 1996

History

North Dakota Social Studies Standards, Draft, June 1998

Geography
North Dakota Social Studies Standards, Draft, Spring 1999

Math
Mathematics Standards and Benchmarks, Third Draft "In Progress," February 1999

Science
Science Standards, Draft In Progress, Spring 1999

Ohio

English/Language Arts
Model Competency-Based Language Arts Program, 1996

History
Model Competency-Based Social Studies Program, November 1993

Geography
Model Competency-Based Social Studies Program, 1994

Math
Model Competency-Based Mathematics Program, November 1990

Science
Model Competency-Based Science Program, 1996

Oklahoma

English/Language Arts
Priority Academic Student Skills, April 1999

History
Priority Academic Student Skills: Social Studies, Revised, April 1999

Geography
Ibid.

Math
Priority Academic Student Skills: Mathematics, April 1999

Science
Priority Academic Student Skills: Science, April 1999

Oregon

English/Language Arts
1) *Teacher Support – Oregon Standards: English*, January 1997
2) *Reading Assessment: Grades 3, 5, 8, and 10 Sample Tests*, January 1997
3) *Test Specifications and Sample Assessments for Reading, Literature, and Writing*, 1997

History
Social Sciences: Teaching & Learning to Standards, Teacher Resources 1999-2000, September 1999

Geography
Ibid.

Math
Content Standards, 1998

Science
Teaching & Learning Standards: Science, September 1999

Pennsylvania

English/Language Arts
Academic Standards for Reading, Writing, Speaking, and Listening, January 1999

History
Chapter Five Learning Outcomes, 1994

Geography
No standards were available for review.

Math
Academic Standards for Mathematics, January 1999

Science
No standards were available for review.

Rhode Island

English/Language Arts
Literacy for ALL Students: The Rhode Island English Language Arts Framework, 1996

History
No standards were available for review.

Geography
No standards were available for review.

Math
Mathematics Framework K-12, October 1995

Science
Science Literacy for ALL Students: The Rhode Island Science Framework, Revised Edition, 1995

South Carolina

English/Language Arts
Reading/English Language Arts: Curriculum Standards, 1998

History
Social Studies Framework and Standards, March 1999

Geography
Ibid.

Math
Mathematics Curriculum Standards, 1998

Science
Science Curriculum Standards, 1998

South Dakota

English/Language Arts
English Language Arts Content Standards, 1998

History
Social Studies Content Standards, June 1999

Geography
Ibid.

Math
Mathematics Content Standards, December 1998

Science
1) *Science Content Standards*, June 1999
2) *Technical Guide for Implementing Content Standards: Science*, Draft III, March 1999

Tennessee

English/Language Arts
1) *Language Arts/Reading K-12*, 1999
2) CTB/McGraw-Hill's *TerraNova Performance Levels Handbook* and Instructional Objectives for Levels 10-12/22, Form A
3) English II Gateway Test Standards, 1999

History
K-12 Social Studies Framework, April 1999

Geography
K-12 Social Studies Curriculum Framework, May 1996

Math
1) *K-8 Mathematics Framework*, October 1996
2) *Content Standards and Learning Expectations*, Grades 9-12, 1998
3) Algebra I Gateway Test Standards, 1999

Science
1) *K-12 Science Framework*, 1995
2) Biology Gateway Test Standards, 1999

Texas

English/Language Arts
Texas Essential Knowledge and Skills for English Language Arts and Reading, July 1997

History
Texas Essential Knowledge and Skills, Social Studies and Economics, September 1997

Geography
Ibid.

Math
1) *Texas Essential Knowledge and Skills for Mathematics*, Chapter 111, September 1998
2) *Texas Essential Knowledge and Skills for Mathematics*, Chapter C, 9-12, September 1996

Science
Texas Essential Knowledge and Skills for Science, 1997

Utah

English/Language Arts
1) *Core Curriculum: Language Arts, Grades K-6*, Revised 1996
2) *Core Curriculum: Language Arts, Grades 7-12*, Revised 1999

History
Core Curriculum: Social Studies, Revised, Undated, Received May 1997

Geography
Core Curriculum: Social Studies, 1993 and 1996

Math
Core Curriculum: Mathematics Units, September 1996

Science
Elementary Science Core; Secondary Science Core, 1994

Vermont

English/Language Arts
1) *Framework of Standards and Learning Opportunities*, 1996
2) *English Language Arts Revisions*, May 1999

History
Framework of History and Social Sciences Standards and Learning Opportunities, Revised April 1999

Geography
Ibid.

Math
Framework of Standards and Learning Opportunities: Science, Mathematics and Technology Standards, 1996; additional content items received by reviewers in 1999

Science
Framework of Standards and Learning Opportunities: Science, Mathematics and Technology Standards, 1996

Virginia

English/Language Arts
English Standards of Learning, June 1995

History
History and Social Science Standards of Learning, June 1995

Geography
Ibid.

Math
Mathematics Standards of Learning, June 1995

Science
Science Standards of Learning, June 1995

Washington

English/Language Arts
Essential Academic Learning Requirements: Reading, Writing, and Communication, February 1997

History
Essential Academic Learning Requirements: Social Studies, July 1998

Geography
Essential Academic Learning Requirements: Social Studies, February 1997

Math
Essential Academic Learning Requirements Technical Manual, 1997

Science
Ibid.

West Virginia

English/Language Arts
Instructional Goals and Objectives for West Virginia Schools, 1996

History
Instructional Goals and Objectives for West Virginia Schools, 1997

Geography
Ibid.

Math
Instructional Goals and Objectives for West Virginia Schools, September 1996

Science
Documents (no title, no date) downloaded from http://access.k12.wv.us/~dschafer

Wisconsin

English/Language Arts
Academic Content and Performance Standards for the English Language Arts, 1998

History
Model Academic Standards for Social Studies, 1998

Geography
Ibid.

Math
Model Academic Standards for Mathematics, 1998

Science
Model Academic Standards, 1998

Wyoming

English/Language Arts
Language Arts Content and Performance Standards, 1998

History
Wyoming Social Studies Content and Performance Standards, Draft, Received for Review, August 1999

Geography
Wyoming Social Studies Content and Performance Standards, Draft, August 1999

Math
Mathematics Content and Performance Standards, June 1998

Science
Wyoming Science Content and Performance Standards, April 1999

Appendix G: School-Based Accountability

Table G1. School-Based Accountability in the 50 States

	Report Cards State issues report cards on individual schools; report cards include test scores.[1]	Rewards for Successful Schools State identifies successful schools and offers them all recognition and/or rewards.[2]	School Ratings State evaluates and rates all of its public schools on the basis of their academic performance.[3]	Threat of Sanctions State has the authority to reconstitute—or otherwise make major changes in—failing schools.[4]	Use of Sanctions State actually exercises the authority to reconstitute—or otherwise make major changes in—failing schools.[5]
Alabama	**yes**	**no**	**yes**	**yes**	**no**
Alaska	**no**[6]	**no**	**no**	**no**	**no**
Arizona	yes	no	no	no	no
Arkansas	**no**	**no**	**no**	**no**	**no**
California	**yes**	**yes**	**yes**[7]	**no**	**no**
Colorado	no	no	no	no	no
Connecticut	yes	no	no	no	no
Delaware	**yes**	**no**	**no**	**yes**	**no**
Florida	**yes**	**yes**	**yes**	**yes**[8]	**no**
Georgia	**yes**	**yes**	**no**	**no**	**no**
Hawaii	yes	**yes**[9]	no	no	no
Idaho	no	no	no	no	no
Illinois	**yes**	**yes**	**no**	**yes**	**no**
Indiana	**yes**	**yes**	**yes**	**yes**	no
Iowa	no	no	no	no	no
Kansas	**yes**	**no**[10]	**yes**	**yes**	**no**
Kentucky	**yes**	**yes**	**yes**	**yes**	**no**
Louisiana	yes	no	no[11]	yes	no
Maine	no	no	no	no	no
Maryland	**yes**	**yes**	**no**	**yes**	**no**
Massachusetts	yes	no	no	no	no
Michigan	yes	no[12]	no[13]	yes	no
Minnesota	yes	no	no	no	no
Mississippi	no	no	no	no	no
Missouri	yes	no	no	no	no
Montana	no	no	no	no	no
Nebraska	no	no	no	no	no
Nevada	**yes**	**yes**	**yes**	**yes**	**no**
New Hampshire	no	no	no	no	no
New Jersey	yes	yes	no	no	no
New Mexico	**yes**	**yes**	**no**	**yes**	**no**
New York	**yes**	**no**[14]	**no**	**yes**	**yes**
North Carolina	**yes**	**yes**	**yes**	**yes**	**yes**[15]
North Dakota	no	no	no	no	no
Ohio	yes	no	no	no	no
Oklahoma	**yes**	**no**	**no**	**yes**	**yes**
Oregon	no	yes	no	no	no
Pennsylvania	yes	yes	no	no	no
Rhode Island	yes	no	no	no[16]	no
South Carolina	**no**	**yes**	**no**	**yes**	**yes**[17]
South Dakota	yes	no	no	no	no
Tennessee	no	yes	no	no	no
Texas	**yes**	**yes**	**yes**	**yes**	**yes**
Utah	no	yes	no	no	no
Vermont	yes	no	no	yes	no
Virginia	**yes**	**no**	**yes**	**yes**	no
Washington	yes	no	no	no	no
West Virginia	**yes**	**no**	**yes**	**yes**	**no**
Wisconsin	yes	no	no	no	no
Wyoming	yes	no	no	no	no

States in bold meet at least three of the five school-based accountability criteria and are therefore considered to have strong accountability systems. Unless otherwise noted, all data come from *Quality Counts '99: Rewarding Results, Punishing Failure*, published by *Education Week*, January 11, 1999. More recent—and sometime contradictory—information was obtained and verified through direct communication with the states.

Notes to Table G1

[1] State measures pupil achievement and issues school-specific report cards that include pupil achievement. Data Source: *Education Week's Quality Counts '99*, page 87 (column one, "Does the state have an annual report card on each of its schools?") and page 88 ("What Information Do States Include on Report Cards?" column one, "Test scores"); whether districts are required to issue report cards was verified in follow-up phone calls to states. This must be a true report card. It should be very user-friendly. If a state merely publishes test scores, it does not receive credit. States do not receive credit for report cards on school districts, only for report cards on individual schools.

[2] State identifies successful schools and offers them recognition and/or rewards (including financial rewards). Data Source: *Education Week's Quality Counts '99*, page 93 (column one, "Does the state reward or recognize successful schools?"); information verified in follow-up phone calls to states.

[3] State evaluates and rates its schools on the basis of their academic performance. Data Source: *Education Week's Quality Counts '99*, page 90 (column one, "Does the state evaluate and assign ratings to its schools?"); information verified in follow-up phone calls to states. All regular public schools must be evaluated for state to receive credit; it is understood that some states exempt alternative schools and other specialized schools.

[4] State has the authority to reconstitute-or otherwise make major changes in-failing schools. Data Source: *Education Week's Quality Counts '99*, page 96 (We looked at the first six sub-columns of the first two overarching columns, "What are the state's strongest sanctions for dealing with failing schools?" and "What other sanctions can the state impose on failing schools?" The sub-columns indicate six different sanctions that states may impose: closure, takeover, reconstitution, replacing principals, open enrollment, loss of accreditation); information verified in follow-up phone calls to states. For states to receive credit, the threat of sanctions must apply to all public schools.

[5] State actually exercises the authority to reconstitute—or otherwise make major changes in—failing schools. Data Source: *Education Week's Quality Counts '99*, page 96 (last column, "Has the state ever closed, taken over, or reconstituted a low-performing school?"); information verified in follow-up phone calls to states.

[6] District-based report cards only, contrary to *Quality Counts '99* data

[7] Contrary to *Quality Counts '99* data, schools are currently rated in percentile bands (based on test scores)

[8] Students in consistently failing schools may transfer to other public schools or receive voucher towards tuition at a private school (new law since *Quality Counts '99*)

[9] Blue Ribbon Schools Program (not reported in *Quality Counts '99*)

[10] Kansas does not reward successful schools, in contradiction to *Quality Counts '99*

[11] Louisiana will not rate high schools until 2001

[12] Michigan does not reward successful schools, contrary to *Quality Counts '99*

[13] Currently, Michigan only identifies low-performing K-8 schools, not high schools.

[14] New York does not reward successful schools, contrary to *Quality Counts '99*

[15] North Carolina has closed at least one school (not reported in *Quality Counts '99*)

[16] Rhode Island does not have the authority to reconstitute or otherwise make major changes in failing schools, contrary to *Quality Counts '99*

[17] South Carolina has replaced at least one principal (not reported in *Quality Counts '99*)

Appendix H: Contributors

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